



Liz Coutinho



Rúbio Bessa



Darcylaine Martins



Kelly Verçosa



FERNANDES FILHO



Ana Cristina -DF



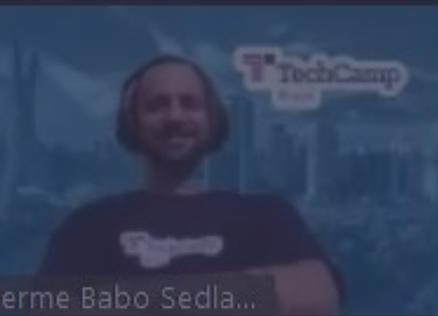
Lara Ribeiro



Sheyla Marques - IFAL



Flavia Costa Lima Ferre...



Lherme Babo Sedla...



Wesley Oliveira - Brazil



Aldeni Melo Macapá/AP



LHERME HENRIQU...



Izael



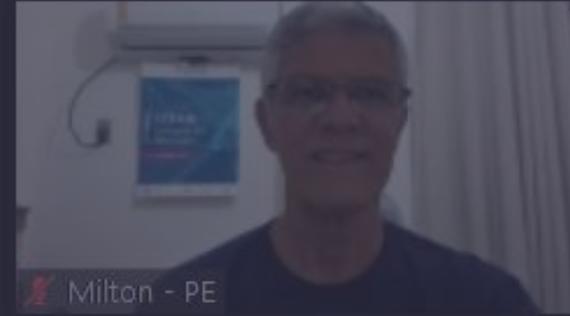
JOÃO CARLOS - PE



gna Lameiro Lameiro



marla.heckler



Milton - PE



ONE



Deise Lima - RO



Katiany Abreu



Ana Janete Viana Souza

beto cesar

Rodrigo Suigh

Tiago - SED/MS

Bruno - CWB/PR

Márcia MIZUNO

Dalva Ferraz

Carla Castro AP

Fabio

Profª Lark Soany Santos

Evelyn Takamori

.Marilene Pereira Guim...

Anelise

Kleiton Soares

Alexandra Fraga Vazqu...

Monica Tonhatto

Mônica Couto/MG

Adriana Barros-Pa



# STEAM

innovation in education

full report 2012-2022

REALIZAÇÃO:

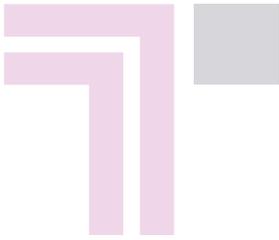


APOIO:



APOIO MASTER:





Started back in 2018 as a pilot initiative, Brazil's STEAM TechCamp has become a strong partnership between the U.S. Embassy & Consulates, the University of São Paulo (USP) and 3M Institute. It also counts on the institutional support of the National Council of State Secretariats of Education (Consed), key in disseminating information about this initiative throughout Brazil's network of public school curriculum coordinators and teachers. This week-long STEAM education immersion includes presentations, workshops, interaction with private sector leaders, and hands-on activities to expose these select group of educators to innovative teaching methodologies and digital tools. This program also helps them develop measurable action plans that address high school STEAM deficit areas and provide better workforce readiness for Brazilian youth.

We are proud to say that over the years, STEAM TechCamp has brought together over 300 public secondary school curriculum coordinators and teachers from across Brazil to promote innovative teaching practices and quality education strategies. This initiative has stimulated the creation of a robust collaborative network of trained professionals from all 27 Federal Units who have, through small grant opportunities, developed training, workshops and other follow-on initiatives that have already benefited over 36,000 teachers and 156,000 students.

As a crucial bilateral area of collaboration between the U.S. and Brazil, both countries agree that Science, Technology, Engineering, Arts and Mathematics (STEAM) play a critical role in the growth and stability of any economy. Therefore, creating opportunities for hands-on, STEAM-focused education and engaging settings help students cultivate problem-solving, critical thinking, communication, and teamwork skills that will put them on the right track to a successful career, while also sustaining the economy and contributing to the global workforce.



**Todd Miyahira**  
*Attaché for Education and  
Cultural Affairs at the U.S.  
Embassy in Brazil*

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These were the fourth and fifth years that we have had the privilege of holding the STEAM TechCamp Brasil, and it is with great satisfaction that, with each edition, we have witnessed participants achieving excellent results in their regions through the action plans they develop during the program.

Held for the first time in 2018, the STEAM TechCamp Brasil is an initiative of the U.S. Embassy in Brazil in partnership with the Technological Integrated Systems Laboratory (LSI-TEC) and with support from the Polytechnic School of the University of São Paulo (POLI-USP), the National Council of Secretaries of Education (Consed) and the 3M Institute.

We started this journey with the primary goal of offering education professionals from all over Brazil special training in STEAM (Science, Technologies, Engineering, Arts and Mathematics) and in the active implementation and dissemination of innovative educational strategies and practices in the schools where they work, but what we have created has been positively even greater.

Over these five years, we were able to establish an ever-expanding learning community to exchange knowledge about what already works in education and what needs to be improved, as well as share strategies and technologies, and, above all, think about the new, exploring issues and problems of the real world with the support of digital tools.

More than 4,500 schools have already benefited from these actions in all 27 Federation Units, and what we want is to increasingly strengthen and expand this network of change in education through actions that raise awareness and offer continuing training associated with the promotion and monitoring of action plans, so that the positive impacts of this program can more quickly reach schools across the whole country.

***Roseli de Deus Lopes***  
*Scientific Coordinator  
of the STEAM TechCamp  
Brasil Program  
Associate Professor III at  
the Polytechnic School of  
the University of São Paulo*

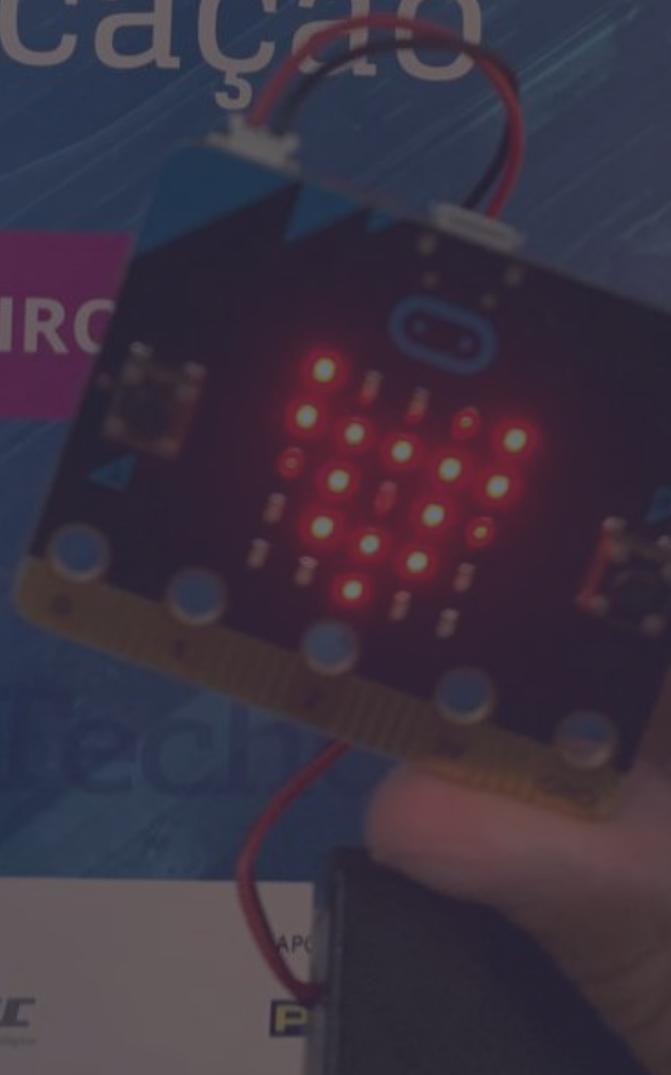
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# STEAM:

## Inovação em Educação

12 FEVEREIRO



IZAÇÃO:



APC



# summary

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# **introduction**



# introduction

In the face of the complex and multifaceted challenges of the contemporary world, it is increasingly urgent to create and encourage initiatives that prepare our young people to make decisions based on scientific evidence and act dynamically, identifying creative solutions through the integration of various fields of study.

Thus, to ensure that current and future generations are always in tune with the changes and able to shape them according to our needs, we must make efforts to create learning environments that are integrated, fluid and dynamic, providing the fundamental means to prepare our teachers and students to be representatives of the power of research and innovation.

Considering that, STEAM, which stands for Science, Technology, Engineering, Arts and Mathematics, is a teaching and learning methodology created to supply that demand through the integration of knowledge in these five fields of study, endowing students with the ability to overcome everyday problems and future challenges.

According to Roseli de Deus Lopes, professor at the Polytechnic School at the University of São Paulo and scientific coordinator of the STEAM TechCamp Brasil, we must encourage initiatives that allow “teachers and managers from the Brazilian education network to share their experiences on how to integrate Science, Technology, Engineering, Arts and Mathematics into the schools, using activities that are linked to the real world, so that we can achieve a better engagement from students based on their various interests”. Students must understand that there is a reason for everything they experience, and the best way to comprehend it is through scientific research.



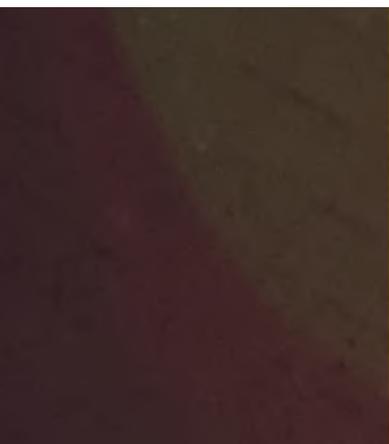
After five years, the STEAM TechCamp program continues to achieve better results with every edition. We have already proved that active learning practices such as STEAM can encourage students and teachers to take wise risks, commit to thinking without borders and embrace problem-based learning with a sense of collaboration, integration and creativity.

It is up to all of us, as citizens of the present time, to create, strengthen and expand actions and spaces that generate the right opportunities to apply these initiatives, thus paving the way for the learners, educators, citizens and leaders needed to build our future!





**what is it?**



# what is it?

“There is no way for us to improve people’s lives and achieve social and economic development if it is not through education.”



**Roseli de Deus Lopes,**  
*STEAM TechCamp Brasil*  
*Scientific Coordinator*

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Created in 2010 by the U.S. Department of State, the TechCamp program has reached more than 110 countries. It connects specialists in technology with journalists, educators and representatives of NGOs and public organizations, aiming to encourage them to explore innovative technological solutions to problems.

In 2018, the U.S. Embassy in Brazil brought TechCamp to Brazil for the first time to conduct an immersion training program with Brazilian educators aiming to disseminate planning strategies for the incorporation of innovative methodologies and practices into education, in which Science, Technology, Engineering, Arts and Mathematics (STEAM) disciplines are interdisciplinary and actively approached. In Brazil, the program’s initiative is developed by the U.S. Embassy & Consulates in partnership with the Technological Integrated

Systems Laboratory (LSI-TEC) and with support from the Polytechnic School of the University of São Paulo (USP) and the Brazilian State Secretariats of Education.

Since its first edition, the program’s primary goal has been directing technology and education specialists worldwide with managers from the State Secretariats of Education and K-12 teachers in Brazil. These interactions allow these professionals to share and expand their knowledge about the different teaching tools, practices and strategies that can help them overcome challenges in their teaching duties. Moreover, after five editions, we can already see that the established goals are being achieved and improved.

## main goals



**Connect** STEAM specialists with Brazilian education professionals.



Structure a **network of multipliers** of the STEAM methodology.



Implement actions for the **active learning** of STEAM in Brazilian K-12 education.



Encourage the **planning of science, technology and engineering fairs** in Brazil to develop digital education, critical thinking and research in K-12 education.



Overcome the **challenges** of teaching.



Train citizens to think in an **integrated and innovative** manner.



The fourth and fifth editions of the STEAM TechCamp Brasil took place from January to December 2021 and 2022, respectively, offering participants online activities and events through various virtual platforms. Examples included lectures by educational and entrepreneurship leaders, group discussions, collective and dynamic constructions using Design Thinking techniques, development of the first version of the strategic planning proposals for implementation in school communities and more.

With each edition of the STEAM TechCamp Brasil, we create new networks of multipliers, expanding and stimulating the growth of connections and results already established in other years to develop and implement actions aimed at active STEAM learning in public education in Brazil.

Together, the five editions had the participation of 44 specialists and researchers, 308 teachers and education managers, and 150 hours of training activities.

The image shows a presentation slide titled "STEAM" in the center. The slide is composed of several hexagonal shapes containing text:

- Top Left:** "Integrado"
- Top Middle:** "Curriculo Contemporâneo"
- Top Right:** "Ativo/desafiante"
- Middle Left:** "Contextualizado /real"
- Middle Right:** "Traz o aluno para a aula de ciências"
- Center:** "Definição"
- Bottom Left:** "Febre STEM nos EUA"
- Bottom Center:** "Avanços que traz"
- Bottom Right:** "Para além dos EUA"
- Far Right (Vertical):** "Marcas que o STEAM carrega"
- Far Bottom Right:** "O que tem a melhorar"

Below the slide is a video conference interface with five participants: Gustavo Pugliese, Tatiana Jazra, Profª Lark Sov..., Tiago - SED/..., and Raphael Ben... The taskbar at the bottom shows several open windows, including "PROJETO\_Spiff", "PROJETO\_1.pdf", "Traz\_o\_aluno...", "Manifestação Con...", "Nélio Borges 66\_...", "Ciência de Mat...pdf", and "STEAM.ppt".





**participants**

# participants

“Congratulations to each of you, educators, for being selected by this program. We received more than 500 applications from excellent educators from all over Brazil. So, you should be proud of being selected.”



**Douglas Koneff**, *Chargé d'affaires of the U.S. Embassy and Consulates in Brazil, STEAM TechCamp 2021*

To participate in the program, K-12 education professionals from all over Brazil must complete a form and submit a letter of recommendation highlighting their previous active learning STEAM experiences in teaching and/or managing academic programs. The selection is made through an accurate assessment to identify educators who are already engaged and motivated to carry out innovative actions and practices in their cities.

Among the numerous submissions for the 2021 and 2022 editions, the STEAM TechCamp Brasil Selection Committee, composed of professors and researchers from USP, professionals from LSI-TEC and the U.S. Embassy in Brazil, selected the best candidates. The committee sought to choose individuals who were excited and interested throughout the entire process and brought an enriching cultural and educational background to their participation in all activities.



Participants in the 2021 and 2022 editions of the STEAM TechCamp Brasil were entitled to:

- Participate in all online activities and preparations for the STEAM TechCamp Brasil 2021 and 2022 Virtual Week Immersion.
- Participate in all training activities (lectures, discussions, proposals) offered by the STEAM TechCamp Brasil 2021 and 2022 Virtual Week Immersion to develop strategic planning to promote active STEAM learning in their schools.
- Receive a certificate of participation at the end of the edition.
- Access the communication platform of the STEAM TechCamp Brasil Network to exchange experiences between participants, specialists and professionals from the U.S. Embassy, LSI-TEC and POLI-USP, as well as Alumni from previous editions of the program.
- Receive support during the Virtual Week Immersion and through interactions in the STEAM TechCamp Brasil Network Platform to plan, develop, implement and evaluate strategies and actions aimed at active STEAM learning in public education networks.
- Participate, as an Alumni member, in the STEAM TechCamp Brasil Network, receiving communication and opportunities from the U.S. Embassy.
- Compete for the chance to participate in the Brazilian delegation that will go to the next edition of the Regeneron International Science and Engineering Fair (ISEF). In 2021, the participants had all the expenses for their online participation covered by the program. In 2022, registration expenses, travel, hotel and participation in activities were covered.



# Virtual Week Immersion Participants

2021

 578

submissions

496  
teachers

82  
managers from  
Secretariats of  
Education

 61

managers from Secretariats of Education and  
teachers selected

62%

men

38%

women

44%

managers from  
Secretariats of  
Education

41%

public school  
teachers

15%

teachers  
from federal  
institutes

2022

 410

submissions

321  
teachers

80  
managers from  
Secretariats of  
Education

9  
representatives  
of Binational  
Centers

 64

managers from Secretariats of Education and  
teachers selected

55%

men

45%

women

44%

public school  
teachers

39%

managers from  
Secretariats of  
Education

17%

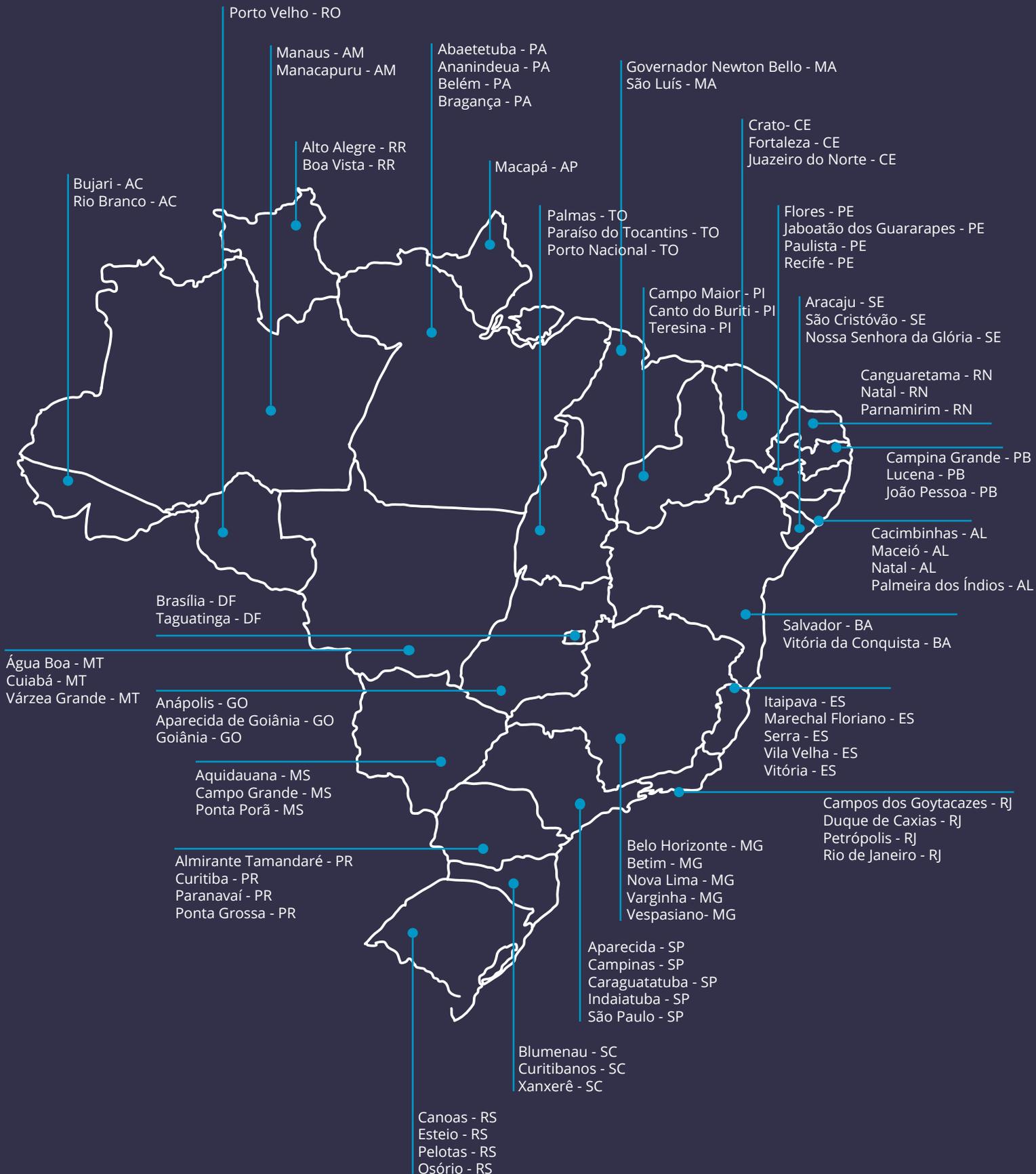
teachers  
from federal  
institutes

 4

representatives of Binational Centers selected

# 27 Federal Units represented

## 84 cities



# Participants

2021

## Managers from Secretariats of Education

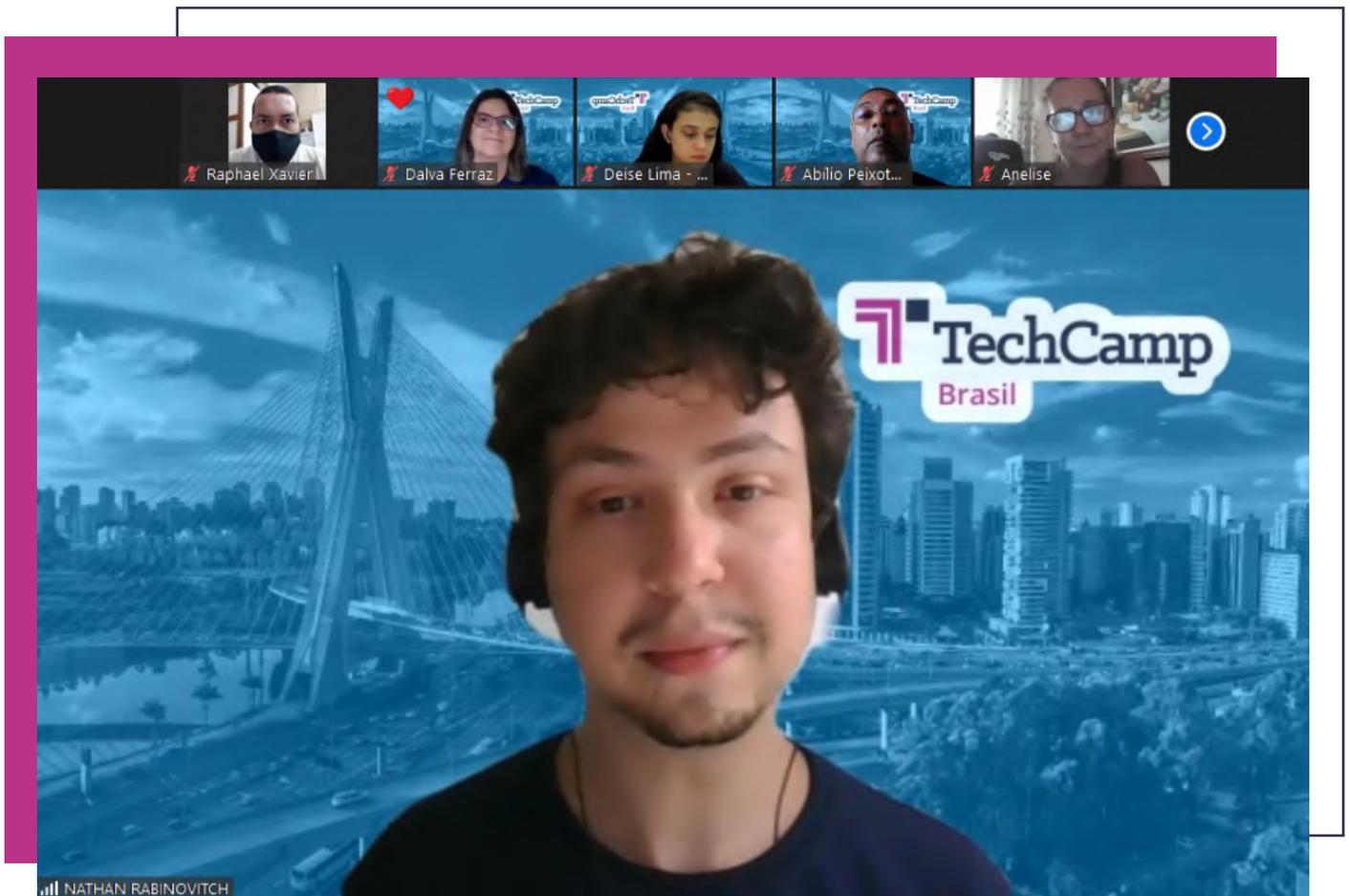
Antonio Fernandes de Souza Filho	<i>Acre</i>
Danielly Verçosa Silva	<i>Alagoas</i>
Carla Augusta da Costa Santos de Castro	<i>Amapá</i>
Raphael Xavier Barbosa	<i>Amazonas</i>
Abílio Cláudio do Nascimento Peixoto	<i>Bahia</i>
Katiany do Vale Abreu	<i>Ceará</i>
Ana Cristina de Almeida	<i>Distrito Federal</i>
Ana Janete Viana Souza	<i>Espírito Santo</i>
Denise Cristina Bueno	<i>Goiás</i>
Carla Susana Lucena Boueres	<i>Maranhão</i>
Fabiula Torres da Costa	<i>Mato Grosso</i>
Tiago Green de Freitas	<i>Mato Grosso do Sul</i>
Mônica de Oliveira Ribeiro Couto	<i>Minas Gerais</i>
Maria do Socorro Braga Reis	<i>Pará</i>
Liliane Alves de Sousa	<i>Paraíba</i>
Bruno Oliveira Soares	<i>Paraná</i>
Milton Matos Rolim	<i>Pernambuco</i>
Izael Araujo Lima	<i>Piauí</i>
Flavia Costa Lima Ferreira	<i>Rio de Janeiro</i>
Kleitton Jullian Soares dos Santos	<i>Rio Grande do Norte</i>
Edson Fabrício Dias da Silva	<i>Rio Grande do Sul</i>
Deise Silva Lima	<i>Rondônia</i>
Fábio Augusto Fogaça	<i>Santa Catarina</i>
Alexandra Fraga Vazquez	<i>São Paulo</i>
Darcylaine Vieira Martins	<i>Sergipe</i>
Erick Henrique Silva Góes	<i>Tocantins</i>

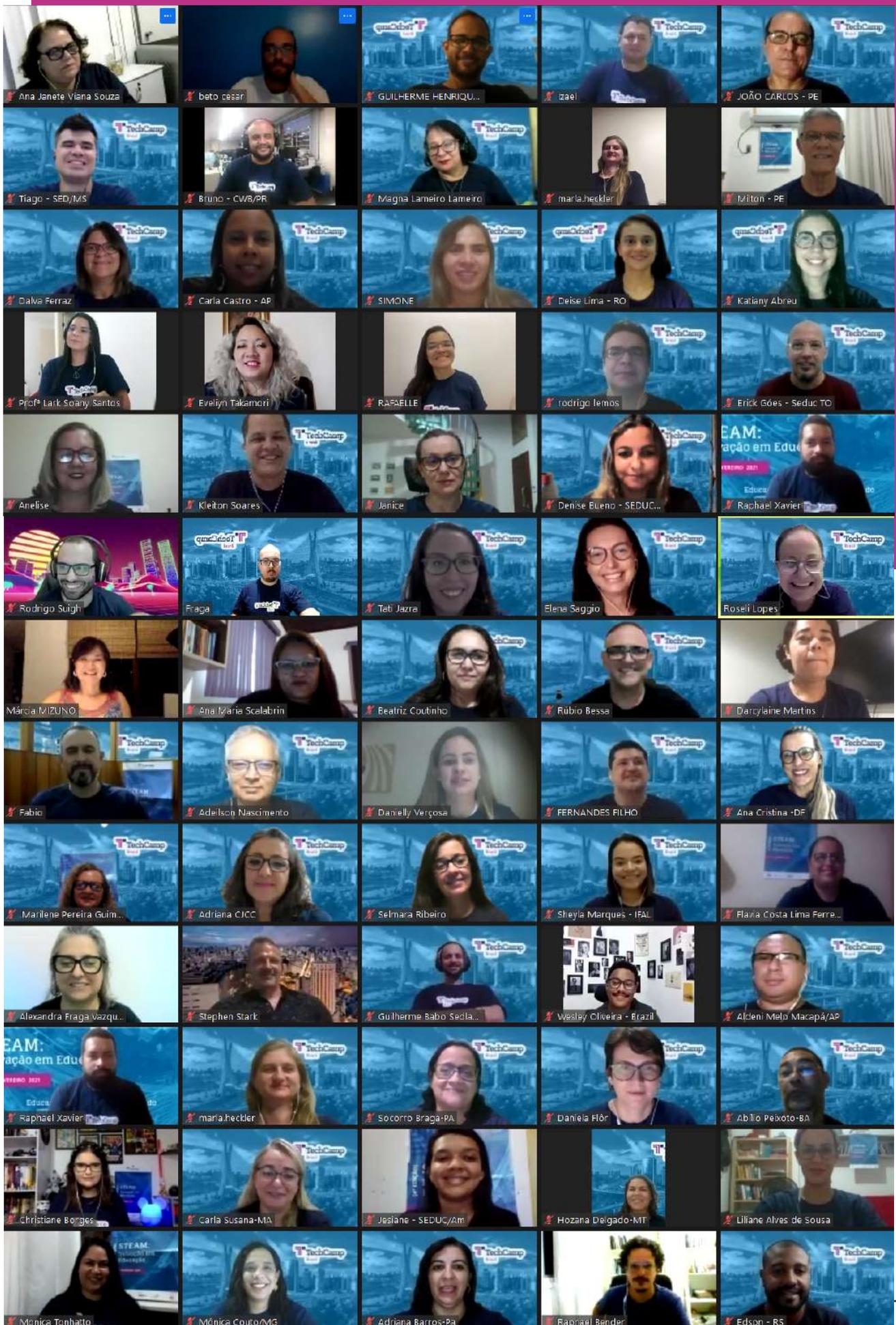
## Secondary Level Teachers from State Public Schools

Jociley da Silva Lima	<i>Núcleo de Incentivo ao Conhecimento Rio Branco – AC</i>
Aldeni Melo de Oliveira	<i>Escola Estadual Irmã Santina Rioli Macapá – AP</i>
Jesiane Andrade Spíndola	<i>Escola Estadual Nossa Senhora de Nazaré Manacapuru – AM</i>
Adriana Santos Sousa	<i>Centro Juvenil de Ciência e Cultura de Vitória da Conquista Vitória da Conquista – BA</i>
Guilherme Henrique Neves Alves de Souza	<i>Centro de Ensino Médio Integrado do Gama Brasília – DF</i>
Dalva de Oliveira Ferraz	<i>EEEFM Emílio Oscar Hülle Marechal Floriano – ES</i>
Rubio Dorneles de Bessa	<i>Colégio Estadual Dom Pedro I Aparecida de Goiânia – GO</i>
Cleiton dos Santos	<i>Centro Educa Mais Poeta Antônio José Santa Inês – MA</i>
Hozana Donatila Delgado	<i>Escola Estadual Vereador Ramon Sanches Marques Tangará da Serra – MT</i>
Anelise Sandri Volce	<i>Escola Estadual Prof. Henrique Cyrillo Corrêa Campo Grande – MS</i>
Selmara Ribeiro da Silva	<i>Escola de Formação e Desenvolvimento Profissional e de Educadores de Minas Gerais Belo Horizonte – MG</i>
Adriana da Conceição Barros do Rosário	<i>EEEFM Augusto Corrêa Bragança – PA</i>
Francisca Simone Pereira Fernandes	<i>ECIT Izaura Falcão de Carvalho Lucena – PB</i>
Monica Maria Tonhatto dos Santos	<i>Colégio Estadual Floripa Teixeira de Faria Almirante Tamandaré – PR</i>
João Carlos Félix de Menezes	<i>Escola Compositor Antônio Maria Olinda – PE</i>
Maria Beatriz Dias Coutinho	<i>CETI Cândido Borges Campo Maior – PI</i>
Roberto César Cucharero Peregrin	<i>Colégio Estadual Lia Márcia Gonçalves Panaro Duque de Caxias – RJ</i>
Raphael Bender Chagas Leite	<i>CEEP Prof. Lourdinha Guerra Parnamirim – RN</i>
Magna da Gloria Silva Lameiro	<i>Escola Técnica Estadual Santa Isabel São Lourenço – RS</i>
Adeilson Nascimento de Souza	<i>Escola Estadual de Ensino Médio Major Guapindaia Porto Velho – RO</i>
Ana Maria Mota Oliveira Scalabrin	<i>Escola Estadual Professor Camilo Dias Boa Vista – RR</i>
Eveliyn Tiemi Takamori	<i>Escola Estadual Vitor Meireles Campinas – SP</i>
Lark Soany Santos	<i>Colégio Estadual Dom Juvêncio de Brito Canindé de São Francisco – SE</i>
Marilene Pereira Guimaraes	<i>Escola Estadual Ana Macedo Maia Porto Nacional – TO</i>

## Secondary Level Teachers from Federal Institutes

Sheyla Karolina Justino Marques	IFAL – Campus Palmeira dos Índios Palmeira dos Índios – AL
Rafaelle da Silva Souza	IFBA – Campus Seabra Seabra – BA
Francisco Rodrigo de Lemos Caldas	IFCE – Campus Juazeiro do Norte Fortaleza – CE
Christiane Borges Santos	IFGO – Campus Luziânia Luziânia – GO
Daniela Eloise Flôr	IFPR – Campus Paranavaí Paranavaí – PR
Marla Heckler	IFRS – Campus Osório Osório – RS
Guilherme Babo Sedlacek	IFSC – Campus Xanxerê Xanxerê – SC
Janice Peixer	IFSP – Campus Caraguatatuba Caraguatatuba – SP
Juliano Silva Lima	IFS – Campus Glória Nossa Senhora da Glória – SE





# 2022

## Managers from Secretariats of Education

Anderson de Paiva Melo	<i>Acre</i>
Andrea Ferreira da Silva Maciel	<i>Alagoas</i>
Elender Keuly de Souza	<i>Amapá</i>
Lincoln de Sousa Araújo Filho	<i>Amazonas</i>
Rosemary Lopes Soares da Silva	<i>Bahia</i>
Francisca Claudeane Matos Alves	<i>Ceará</i>
Juliana Alves de Araújo Bottechia	<i>Distrito Federal</i>
Lorena Tereza da Penha Silva	<i>Espírito Santo</i>
Divino Alves Bueno	<i>Goiás</i>
Genilson Rodrigues Ferreira Lima	<i>Maranhão</i>
Pedro Araujo Campos	<i>Mato Grosso</i>
Éverton Paulino Damaceno	<i>Mato Grosso do Sul</i>
Nívea Cristina de Araújo Viana	<i>Minas Gerais</i>
Antonio Fonseca da Cunha	<i>Pará</i>
Jorbson Bezerra Barros	<i>Paraíba</i>
Andréa Boçois	<i>Paraná</i>
Gabriel Pimenta Carneiro Campelo	<i>Pernambuco</i>
Carlos Henrique Leite do Nascimento	<i>Piauí</i>
Emilia Cristina Maia Farache	<i>Rio Grande do Norte</i>
Luciana Zanchettin	<i>Rio Grande do Sul</i>
Silvânia Gregório Carlos	<i>Rondônia</i>
George Luiz Areb Palheta	<i>Roraima</i>
Luiz Alessandro da Silva	<i>Santa Catarina</i>
Tatiana Rossi Alvarez	<i>São Paulo</i>
Raimundo Ferreira de Melo Neto	<i>Tocantins</i>

## Secondary Level Teachers from State Public Schools

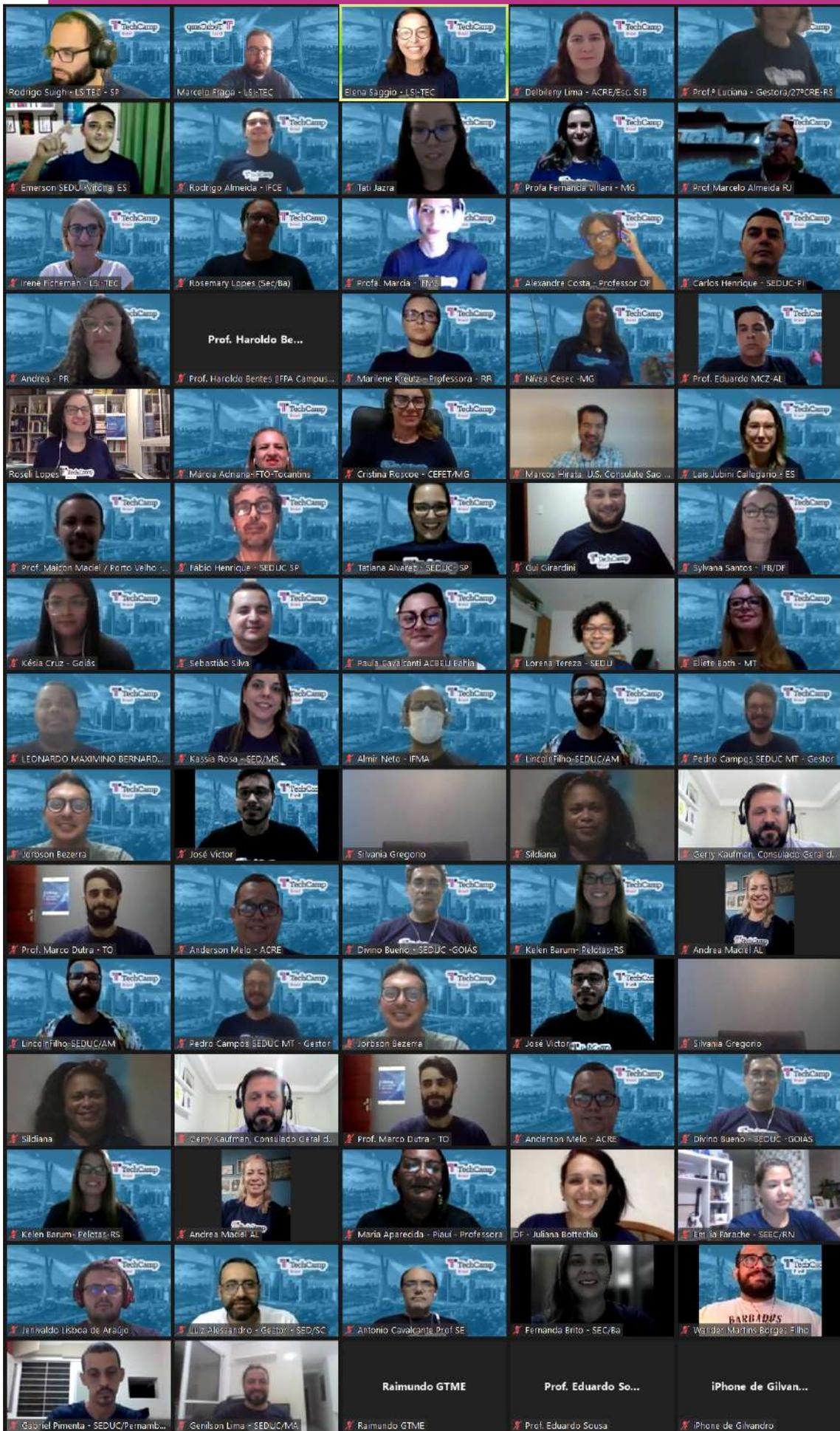
<b>Delbileny Lima de Oliveira</b>	<i>Escola de Ensino Fundamental e Médio São João Batista – AC</i>
<b>Jenivaldo Lisboa de Araújo</b>	<i>Escola Estadual Muniz Falcão – AL</i>
<b>Gilvandro dos Santos Pantaleão</b>	<i>Centro de Atividade de Altas Habilidades/Superdotação – AP</i>
<b>José Victor Bezerra Teixeira</b>	<i>Escola Estadual Nossa Senhora de Nazaré – AM</i>
<b>Fernanda Pereira de Brito</b>	<i>Colégio Estadual da Bahia – BA</i>
<b>Pedro Ferreira dos Santos Júnior</b>	<i>Centro de Educação de Jovens e Adultos Monsenhor Pedro Rocha de Oliveira – CE</i>
<b>Alexandre Santos Jeronimo da Costa</b>	<i>Centro de Ensino Médio Setor Leste – DF</i>
<b>Emerson Fraga Comério</b>	<i>Centro Estadual de Ensino Fundamental e Médio de Tempo Integral Dr. Agesando da Costa Pereira - São Pedro – ES</i>
<b>Késia de Souza Cruz</b>	<i>Centro de Ensino em Período Integral Gomes de Souza Ramos – GO</i>
<b>Sildiana Nascimento Cerqueira</b>	<i>Centro de Ensino Manoel Beckman – MA</i>
<b>Cláudia Inês Dahmer</b>	<i>Escola Estadual Honório Rodrigues de Amorim – MT</i>
<b>Lucineide Maria Miranda</b>	<i>Escola Estadual Joaquim Murtinho – MS</i>
<b>Fernanda Nobre Amaral Villani</b>	<i>Escola Estadual Professor Guilherme Hallais França – MG</i>
<b>Sebastião Gomes Silva</b>	<i>Escola Estadual Bernardino Pereira de Barros – PA</i>
<b>Leonardo Maximino Bernardo</b>	<i>Escola Cidadã Integral Compositor Luis Ramalho – PB</i>
<b>Odair Souza de Oliveira</b>	<i>Centro Estadual de Educação Profissional Agrícola Getúlio Vargas – PR</i>
<b>Gustavo Santos Bezerra</b>	<i>Escola de Referência em Ensino Fundamental e Médio Dário Gomes de Lima – PE</i>
<b>Maria Aparecida Moura Amorim Sousa</b>	<i>Centro Estadual de Tempo Integral Beija Valente – PI</i>
<b>Marcelo Barbosa Almeida</b>	<i>Escola Técnica Estadual Agrícola Antonio Sarlo – RJ</i>
<b>Alexandre Ribeiro da Silva</b>	<i>Escola Estadual Fabrício Maranhão – RN</i>
<b>Kelen Terra do Amaral Barum</b>	<i>E.E.E Médio Dr Augusto Simões Lopes – RS</i>
<b>Maicon Maciel Ferreira de Araujo</b>	<i>E.E.E.F.M. John Kennedy – RO</i>
<b>Marilene Kreutz de Oliveira</b>	<i>Escola Estadual Professor Geraldo da Silva Pinto – RR</i>
<b>Guilherme Girardini Fontana</b>	<i>E.E.B. Belermimo Victor Dalla Vecchia – SC</i>
<b>Fabio Henrique Moreira de Jesus</b>	<i>Escola Estadual Professora Paulina Cardoso – SP</i>
<b>Ila Natielle Neres dos Santos</b>	<i>Centro Estadual de Educação Profissional Gov. Marcelo Deda Chagas – SE</i>
<b>Antonio Cavalcante de Carvalho</b>	<i>Centro Excelência Profissionalizante Profª Neuzice Barreto – SE</i>
<b>Marco Vinicius Gomes Dutra</b>	<i>Escola Estadual Vale do Sol – TO</i>

## Secondary Level Teachers from Federal Institutes

Eduardo Henrique Viana de Sousa	<i>IFAL – Campus Maceió – AL</i>
Rodrigo Queiros de Almeida	<i>IFCE – Campus Juazeiro do Norte – CE</i>
Sylvana Karla da Silva de Lemos Santos	<i>IFB – Campus Brasília – DF</i>
Lais Jubini Callegario	<i>IFES – Campus Piúma – ES</i>
Almir Souza e Silva Neto	<i>IFMA – Campus São Luís-Monte Castelo – MA</i>
Eliete Grasiela Both	<i>IFMT – Campus Barra do Garças – MT</i>
Marcia Ferreira Cristaldo	<i>IFMS – Campus Aquidauana – MS</i>
Cristina Roscoe Vianna	<i>CEFET-MG – Unidade Varginha – MG</i>
Haroldo de Vasconcelos Bentes	<i>IFPA – Campus Belém – PA</i>
Roni Costa Ferreira	<i>IFRJ – Campus São João de Meriti – RJ</i>
Márcia Adriana de Faria Ribeiro	<i>IFTO – Campus Avançado Formoso do Araguaia – TO</i>

## Representatives of Binational Centers

Ana Flavia de Sá Ferraz	<i>ABA Recife – PE</i>
Paula Cavalcanti	<i>ACBEU Bahia – BA</i>
Rosilene do Socorro Santos de Oliveira	<i>Centro Cultural Brasil Estados Unidos - CCBEU – Belém – PA</i>
Wander Martins Borges Filho	<i>Centro Binacional Casa Thomas Jefferson – Brasília – DF</i>





**virtual week immersion**

# virtual week immersion

“I feel that this week has given me unique experiences. It’s like I’m falling back in love with teaching.”



***Evelyyn Tiemi Takamori,***  
*State School Teacher,*  
*São Paulo, STEAM*  
*TechCamp 2021*

The main week of activities and training events during the STEAM TechCamp Brasil has been bringing together managers and teachers from public schools located all over Brazil. Through immersion in innovative teaching methodologies, digital tools and the development of action plans, they can apply the knowledge acquired during the program directly in their regions.

In 2021 and 2022, the immersion week took place via virtual meetings held using the Zoom platform. The program covered all costs related to data packages for Internet access and teaching and technological materials

(e.g., electronic kits) so that all selected educators could participate in distance learning activities.

Among the events that took place during the Virtual Week Immersion, participating teachers and education managers were led by specialists from Brazil and abroad in various dynamic activities, lectures and discussions to stimulate and develop the participant’s knowledge of the active teaching of STEAM and the culture of creative and maker learning with investigative and interdisciplinary approaches, such as scientific and technological research and entrepreneurship.



February 08-12

2021

59

Secretariats of Education managers and teachers

16

researchers and specialists

21

hours of training

February 14-18

2022

68

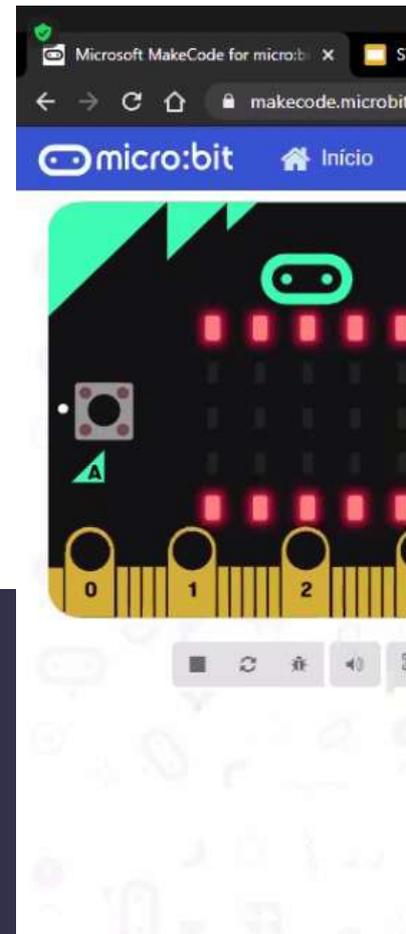
Secretariats of Education managers and teachers

12

researchers and specialists

21

hours of training



LET US MAKE OUR  
 FUTURE NOW AND LET US  
 MAKE OUR DREAMS  
 TOMORROW'S REALITY  
 - MALALA YOUSAFZAI

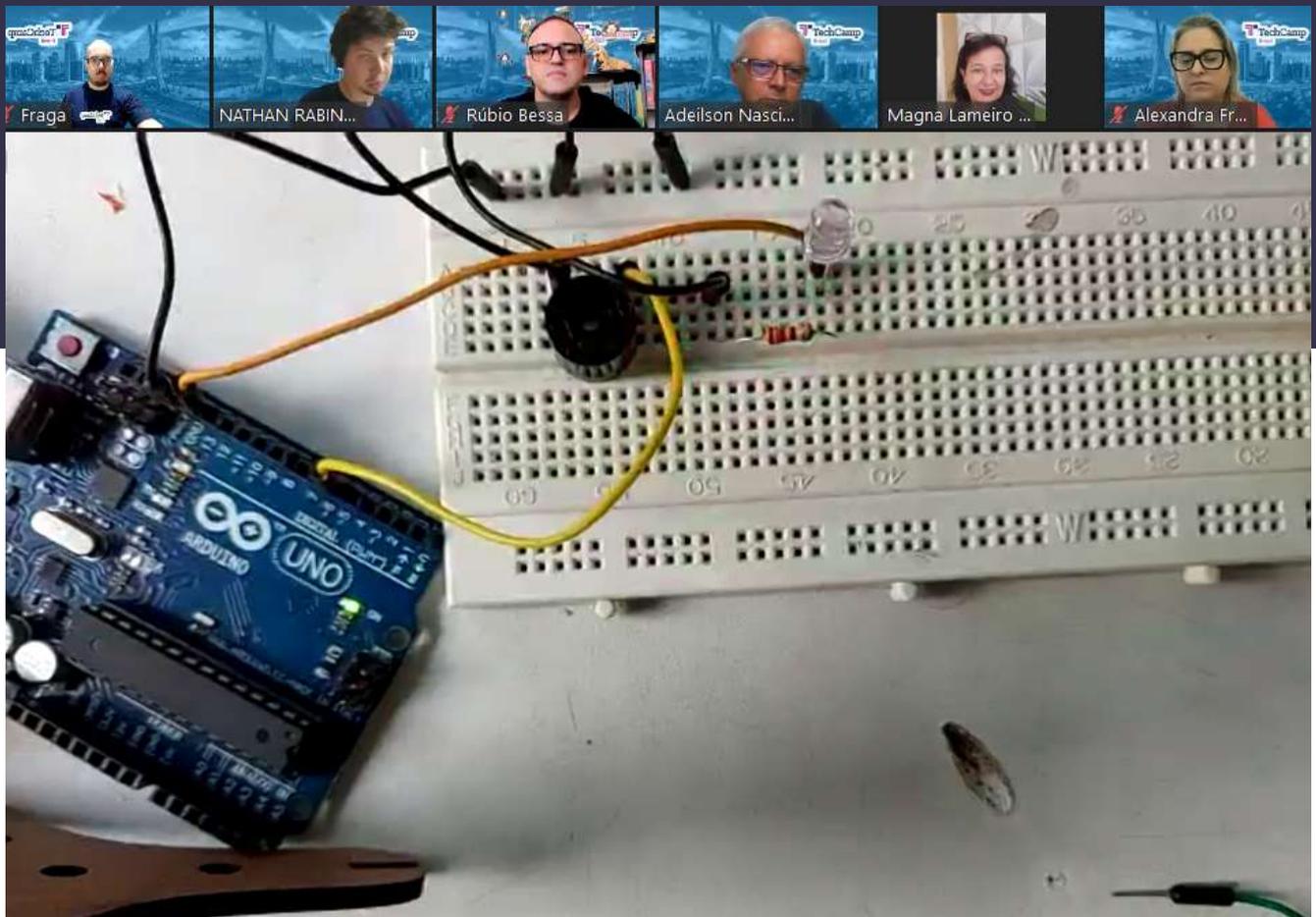
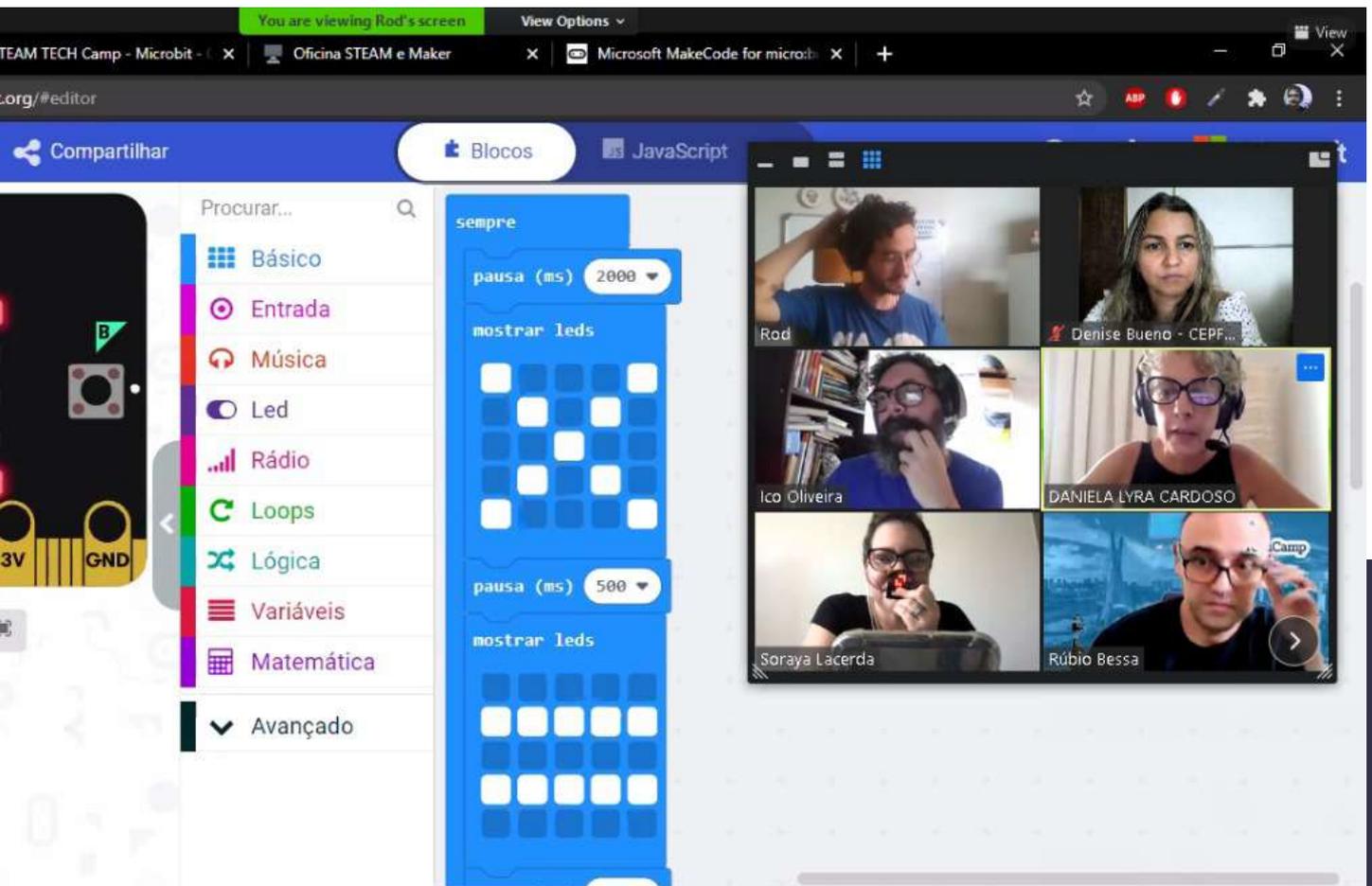


**REGIONAL  
 ENGLISH  
 LANGUAGE  
 OFFICE**



U.S. Embassy and Consulates in Brazil

**RELOBrazil@State.Gov**  
 Facebook: RELO Brazil



# schedule

## U.S. Embassy participation

### **Douglas Koneff (2021)**

Chargé d'affaires of the U.S. Embassy and Consulates in Brazil

### **Steve Stark (2021)**

Attaché of Press, Education and Culture of The U.S. in São Paulo

## Talks and group discussions

### **Roseli de Deus Lopes (2021 and 2022)**

STEAM TechCamp Brasil Scientific Coordinator

### **Walter Bender (2021)**

Senior Research Scientist at the MIT Media Lab

### **Rachel Lotan (2021)**

Emeritus Professor and Former Director of the Stanford Teacher Education Program (STEP)

### **Amanda Fox (2021 and 2022)**

Specialist in the English Language Applied to STEAM

### **Paulo Gandolfi (2021 and 2022)**

R&D Operations Leader at 3M do Brasil

### **Mitchel Resnick (2022)**

MIT Media Lab

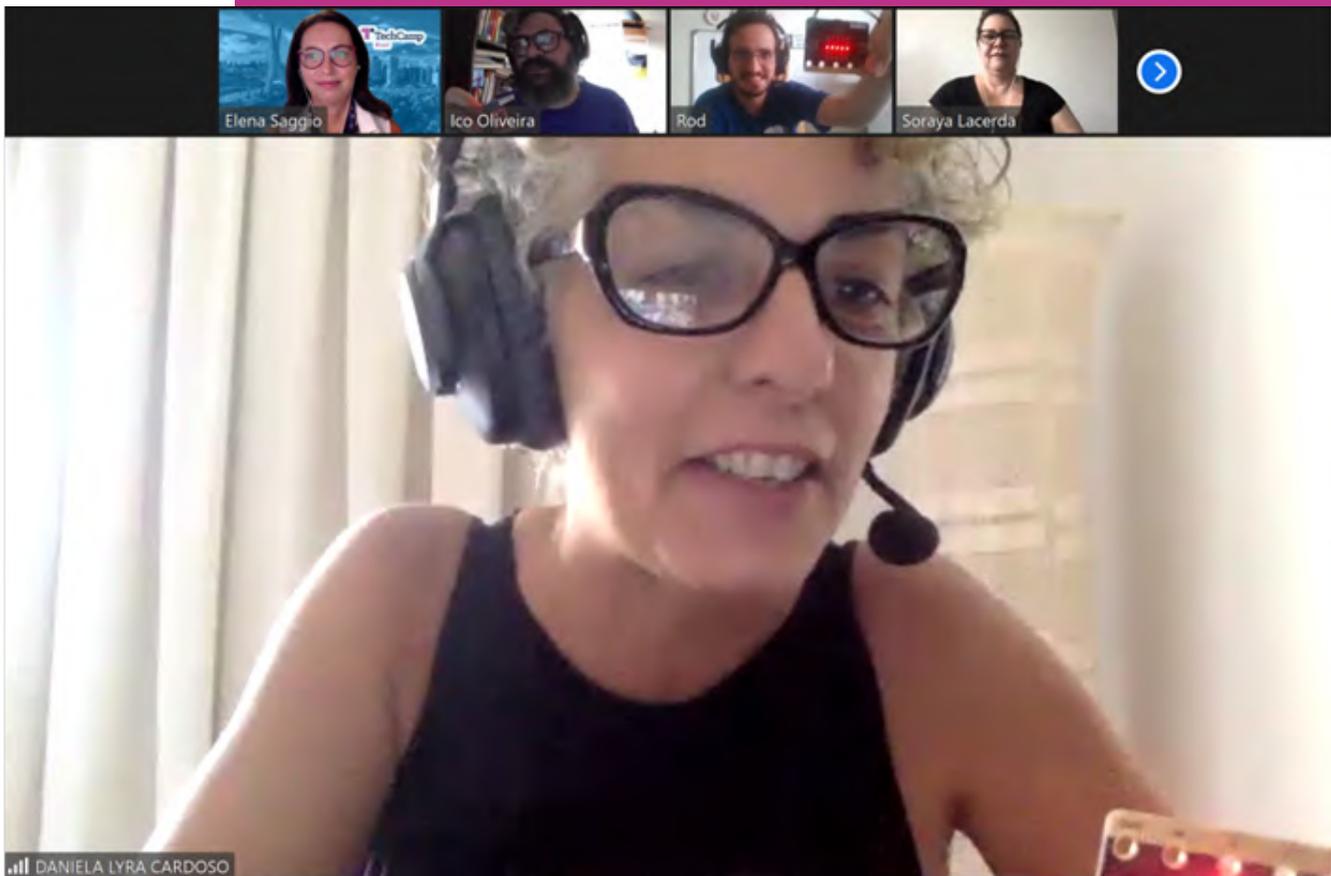
### **João Pedro Novochoadlo (2022)**

Social Entrepreneur and Creative Technologist

### **David Cavallo (2022)**

Ph.D. Professor at the Universidade Federal do Sul da Bahia





## Workshops with educational and entrepreneurial leaders and collective and dynamic constructions

### **Leandro Biazon (2021)**

Researcher & Engineer at LSI-TEC

### **Cassia Fernandez (2021)**

Researcher at USP and Stanford FabLearn Fellow

### **Gustavo Pugliese (2021 and 2022)**

Pedagogical Consultant at Foreducation EdTech

### **Soraya Lacerda (2021 and 2022)**

Coordinator at Casa Thomas Jefferson - Makerspace

### **Daniela Lyra (2021 and 2022)**

Educational and Instructional Technology Specialist - Casa Thomas Jefferson

### **Nathan Rabinovitch (2021 and 2022)**

Creative Learning Specialist and Educator

## Construction of action plans using Design Thinking techniques to be implemented in their schools' communities

### **Roseli de Deus Lopes (2021 and 2022)**

STEAM TechCamp Brasil Scientific Coordinator

### **Irene Karaguilla Ficheman (2021 and 2022)**

Education Technology Manager at LSI-TEC

### **Elena Saggio (2021 and 2022)**

Communication Manager at LSI-TEC



**communication**

# communication

The STEAM TechCamp Brasil Program has a communication strategy integrated with the language of the TechCamp program from the U.S. Department of State. It was developed and used since its first edition to promote the program in Brazil.

The promotional materials include the TechCamp logo, customized for Brazil, by incorporating the word “Brasil” at the bottom of the logo. As a complement, it has the theme of the event, as well as the catchphrase “Inovação em Educação” (Innovation in Education).

In the general language of the event’s visual communication, there is an image of the cable-stayed bridge Ponte Estaiada, in São Paulo, in the background to represent the host city.

08.02 às 15h15

*Pesquisa na Educação Básica*

Edição STEM/STEAM e as Feiras de Ciências e Engenharia no Brasil

**Palestrante**  
**Professora Roseli Lopes**  
Escola Politécnica USP

Semana de Imersão STEAM TechCamp 2021

## facebook - closed group

To facilitate communication among all STEAM TechCamp Brasil participants, a closed Facebook group was created and has been maintained since the first edition. Group members can exchange information and discuss STEAM education initiatives and practices.

We choose the Facebook platform because of its easy access and because Brazil is third in the world for the number of active accounts. Moreover, text, videos, photos and documents can be easily transferred through Facebook. Currently, the group has 326

publications, 248 comments and 3,897 reactions to initiatives started by its members.

Participation in this group is restricted, and those interested must send an authorization request to the group manager. The group has already reached the mark of 274 members, among educators selected by the program, specialists who attended the immersive weeks and members of the organizing and supporting institutions.



## promotional material

TechCamp  
Brasil

[4ª EDIÇÃO] **STEAM:**  
Inovação em Educação

8 - 12 FEVEREIRO 2021

Você sabe o que é o  
STEAM TechCamp Brasil?

Acesse o site e faça parte.  
<https://steamtechcampbrasil.febrace.org.br/v2021>



[4ª EDIÇÃO] **STEAM:**  
Inovação em Educação

8 - 12 FEVEREIRO 2021

TechCamp

15.02 às 15h15

Semana de Imersão  
STEAM TechCamp  
2022

Innovation in Education



Palestrante Professor Mitchel Resnick  
MIT Media Lab

Oficina STEAM  
& English

Semana de Imersão  
STEAM TechCamp  
2022



Palestrante Amanda Fox

Oficina STEAM  
& Arts

Semana de Imersão  
STEAM TechCamp  
2022



Palestrantes Nathan Rabinovitch e Michael Filardi

Ciência Aplicada à Vida

16.02 às 17h30

Semana de Imersão  
STEAM TechCamp  
2022



Palestrante Paulo Gandolfi  
Diretor de P&D da 3M

Oficina STEAM  
& BNCC

Semana de Imersão  
STEAM TechCamp  
2022



Palestrante Gustavo Pugliesi

Oficina STEAM  
& Maker

Semana de Imersão  
STEAM TechCamp  
2022



Palestrantes Soraya Lacerda e Daniela Lyra

4ª EDIÇÃO  
**STEAM:**  
Inovação em Educação

8 - 12 FEVEREIRO 2021

Venha fazer parte de uma rede de multiplicadores para implantar ações de aprendizagem ativa de STEAM\* nas redes públicas de educação básica do Brasil!

\*Ciências, tecnologia, engenharia, artes e matemática

Informações completas sobre o programa e formulários de inscrição:  
<https://steamtechcampbrasil.febrace.org.br/v2021>

REALIZAÇÃO:



APOIO:





**STEAM:**  
Inovação em Educação

8 - 12 FEVEREIRO 2021

PROFESSORES DA EDUCAÇÃO BÁSICA,

Venham fazer parte de uma rede de multiplicadores para implantar ações de aprendizagem ativa de **STEAM** (Ciências, Tecnologia, Engenharia, Artes e Matemática) nas redes públicas de educação básica do Brasil.

**INSCRIÇÕES PARA O PROCESSO SELETIVO**  
ATÉ O DIA 4 DE DEZEMBRO!

Conheçam os detalhes e inscrevam-se!  
Informações completas sobre o programa e formulários de inscrição:  
<https://steamtechcampbrasil.febrace.org.br/v2021>

REALIZAÇÃO:    

APOIO:    



**STEAM:**  
Inovação em Educação

[4ª EDIÇÃO]

8 - 12 FEVEREIRO 2021

TechCamp

## photo and video record

As they were held online, the STEAM TechCamp Brasil Virtual Week Immersion was widely recorded in videos and screenshots in 2021 and 2022, which can be seen in this document.



### STEAM TechCamp Brasil 2021

[https://youtu.be/yxZagQulu\\_A](https://youtu.be/yxZagQulu_A)

# media coverage

The activities of the 2021 and 2022 editions of the STEAM TechCamp Brasil were disseminated in the Brazilian media, including releases and articles about the program that appeared in print and online media outlets from different regions of Brazil.

# 11

mentions on media in 2021

ESCOLA POLITÉCNICA  
FORMANDO ENGENHEIROS E LÍDERES

USP

HOME / NOTÍCIAS / NOTÍCIAS DA POLI-USP / PROFESSORES E GESTORES DE TODAS AS UNIDADES DA FEDERAÇÃO PARTICIPAM DA 4ª EDIÇÃO DO PROGRAMA STEAM TECHCAMP BRASIL

Notícias da Poli-USP

## Professores e gestores de todas as unidades da federação participam da 4ª edição do Programa STEAM TechCamp Brasil

2 anos ago

AMAPÁ GOVERNO DO ESTADO

GOVERNO NOTÍCIAS SERVIÇOS O AMAPÁ TRANSPARÊNCIA RELATÓRIOS

Inicio Todas as Notícias Educadoras amapaenses podem participar de programa de qualificação promovido pelos EUA

quinta, 12 de novembro de 2020 - 12:36h - 8598

## Educadores amapaenses podem participar de programa de qualificação promovido pelos EUA

O programa de qualificação conta com a parceria de várias instituições brasileiras e vai selecionar 60 educadores do ensino básico de todo o Brasil.

Por: Valdel Balheiro

Tweetar Compartilhar

STEAM: Inovação em Educação (4ª EDIÇÃO) 8 - 12. FEVEREIRO 2021

consed

AGÊNCIA DE NOTÍCIAS INSTITUCIONAL

Agenda de Aprendizagem Escola de Formação

## Professora do CJCC de Vitória da Conquista representa a rede estadual no Steam TechCamp Brasil 2021

Bahia 09.02.2021

A professora Adriana Sousa, que leciona no Centro Juvenil de Ciência e Cultura (CJCC) de Vitória da

### **Ciências e Cognição**

<http://cienciasecognicao.org/redeneuro/techcamp-e-aprendizagem-ativa/>

### **Consed**

<https://www.consed.org.br/noticia/professora-do-cjcc-de-vitoria-da-conquista-representa-a-rede-estadual-no-steam-techcamp-brasil-2021>

### **EducaBrasil**

<https://www.educabrasil.com.br/professores-e-gestores-de-todas-as-unidades-da-federacao-participam-da-4a-edicao-do-programa-steam-techcamp-brasil/>

### **Embaixada e Consulados dos EUA no Brasil**

<https://br.usembassy.gov/pt/steam-techcamp-brasil-abre-inscricoes-para-a-4a-edicao>

### **Escola de Formação/SEDUC MG**

<https://escoladeformacao.educacao.mg.gov.br/index.php/externas/334-stem-techcamp-brasil-2021>

### **Escola Politécnica da USP**

<https://www.poli.usp.br/noticias/noticiasdapoliusp/48420-professores-e-gestores-de-todas-as-unidades-da-federacao-participam-da-4a-edicao-do-programa-steam-techcamp-brasil.html>

### **Governo do Estado da Paraíba**

<https://paraiba.pb.gov.br/diretas/secretaria-da-educacao-e-da-ciencia-e-tecnologia/noticias/professor-da-rede-estadual-tem-projeto-selecionado-no-stem-techcamp-brasil-2020>

### **Portal do Governo do Amapá**

<https://www.amapa.gov.br/noticia/1211/educadores-amapaenses-podem-participar-de-programa-de-qualificacao-promovido-pelos-eua>

### **IFBA Portal**

<https://portal.ifba.edu.br/noticias/2021/professora-do-ifba-seabra-representa-a-bahia-no-steam-techcamp-brasil-2021>

### **IFAL Portal**

<https://www2.ifal.edu.br/noticias/ifal-tem-docente-selecionada-para-participar-programa-steam-techcamp-brasil>

### **Secretaria de Educação do Estado da Bahia**

<http://educadores.educacao.ba.gov.br/noticias/professora-do-cjcc-de-vitoria-da-conquista-representara-bahia-no-steam-techcamp-brasil-2021>

8

mentions in media in 2022

The screenshot shows the website of the Instituto Federal de Brasília (IFB). The main header includes the IFB logo and the text 'Instituto Federal de Brasília - MINISTÉRIO DA EDUCAÇÃO'. A search bar and social media icons are also present. The main content area features a news article titled 'STEAM TechCamp Brasil abre inscrições para sua 5ª edição'. The article text describes the program as an initiative of the US Embassy in Brazil, in partnership with the Laboratory of Integrable Systems (LSI-TEC) and the support of the School of Polytechnic of the University of São Paulo (Pol-USP). It aims to structure a network of multipliers for STEAM (Science, Technology, Engineering, Arts, and Mathematics) in basic education. A sidebar on the left contains navigation links like 'Portal IFB', 'Estude no IFB', and 'Espaço do Estudante'. A 'Voltar' button is visible below the article text.

## STEAM TechCamp Brasil abre inscrições para a 5ª edição

29 out. 2021 | Categorias: tecnologia

The graphic is a promotional banner for the STEAM TechCamp Brasil 2022. It features a blue and white background with a network-like pattern. The text 'STEAM: Inovação em Educação' is prominently displayed, along with the dates '14 - 18 FEVEREIRO 2022'. Below this, a dark blue box contains the text: 'PROFESSORES DA EDUCAÇÃO BÁSICA, Venham fazer parte de uma rede de multiplicadores para implantar ações de aprendizagem ativa de STEAM (Ciências, Tecnologia, Engenharia, Artes e Matemática) nas redes públicas de educação básica do Brasil.' A pink button-like area contains the text: 'INSCRIÇÕES PARA O PROCESSO SELETIVO ATÉ O DIA 12 DE NOVEMBRO!'. At the bottom, there are logos for the organizing institutions: USAID, LSI-TEC, Pol-USP, and 3M.

Compartilhar: [f](#) [t](#) [w](#) [e](#)

O Programa STEAM TechCamp Brasil está com inscrições abertas para a 5ª edição. Educadores de todo o Brasil podem se inscrever até o dia 12 de novembro de 2021. O programa de 2022 vai atender 64 educadores com potencial e liderança para articular e aprimorar ações já existentes e implantar novas ações voltadas à aprendizagem ativa em STEAM (sigla em inglês cujas atividades interdisciplinares envolvem as áreas de conhecimentos de ciências, tecnologia, engenharia, artes e matemática), nas redes públicas da educação básica do Brasil. O regulamento detalhado e formulário de inscrição estão disponíveis no site: <https://steamtechcampbrasil.febrace.org.br/v2022/>

**Escola Politécnica da USP**

<https://www.poli.usp.br/noticias/noticiasdapoliusp/64253-5a-edicao-do-steam-techcamp-brasil-acontece-nesta-semana-com-o-apoio-da-poli.html>

**Instituto Federal de Brasília**

<https://www.ifb.edu.br/espaco-do-servidor/noticias/28442-steam-techcamp-brasil-abre-inscricoes-para-sua-5-edicao>

**Instituto Federal do Ceará**

<https://ifce.edu.br/juazeirodonorte/noticias/professor-do-ifce-e-selecionado-para-maior-feira-de-ciencias-do-mundo>

**Oito e Meia**

<https://www.oitomeia.com.br/noticias/educacao/2022/07/06/professor-do-piaui-tem-projeto-premiado-em-feira-internacional-de-ciencias/>

**Portal Roraima**

<https://www.portal.rr.gov.br/noticias/item/5248-troca-de-saberes-gestor-da-escola-voltaire-pinto-ribeiro-e-selecionado-para-5-edicao-do-thehcamp-brasil>

**Portal São João da Boa Vista**

[https://www.sjb.rj.gov.br/site/noticia/educacao\\_de\\_sjb\\_representada\\_em\\_feira\\_de\\_ciencias\\_nos\\_eua\\_/12874](https://www.sjb.rj.gov.br/site/noticia/educacao_de_sjb_representada_em_feira_de_ciencias_nos_eua_/12874)

**Secretaria de Estado de Educação do Mato Grosso do Sul**

<https://www.sed.ms.gov.br/steam-techcamp-brasil-abre-inscricoes-para-a-5a-edicao/>

**TV Prefeito**

<https://tvprefeito.com/educacao-de-sao-joao-da-barra-representada-em-feira-de-ciencias-nos-eua/>



**Regeneron ISEF participation**

# Regeneron ISEF participation

“It was very challenging and enjoyable, testing my limits and seeing how far I could get. I had to dedicate myself tremendously to be able to do my best on the day of the presentation.”



**Rafaela Curcio,**  
*Student, Regeneron ISEF  
2021 Participant*

---

As part of the STEAM TechCamp Brasil program, the U.S. Embassy in Brazil, in partnership with the Technological Integrated Systems Laboratory (LSI-TEC), sponsors students and their projects to join the official Brazilian party selected and accredited at FEBRACE to attend the Regeneron ISEF (International Science and Engineering Fair).

The Regeneron ISEF is a Society for Science & the Public (SSP) program and the world’s largest international pre-college science competition. Approximately 1,800 secondary-level students from more than 80 countries are awarded the opportunity to showcase their independent research and compete for almost US\$4 million in prizes each year. In 2021, the Regeneron ISEF was held online from May 16th to 21st. In 2022, it was held in person in Atlanta, U.S., but it also offered the option to participate online. The fair is a unique opportunity to interact with students and mentors from around the world and to understand better the application and effectiveness of STEAM programs in other locations.

Among the sponsorship benefits offered to those selected to participate in the Regeneron ISEF, the U.S. Embassy and Consulates in Brazil covered all costs for the online activities, including Internet package expenses and kits with a laptop, headphones and a T-shirt for each student. In 2022, the program covered all the costs of registration, airfare, ground transportation, accommodation and participation in activities.

The FEBRACE team also supported those selected by holding an Online Preparatory Workshop, including lectures and training by specialists to better guide the students for successful participation in the Regeneron ISEF.

# Regeneron ISEF

## 2021

100% online

## 2021

May 16-21

## 14

and

## 9

students

projects sponsored by the  
STEAM TechCamp

## 5

awards won by the Brazilian party

## 2022

Atlanta (U.S.) and online

## 2022

May 07-13

## 14

and

## 9

students

projects sponsored by the  
STEAM TechCamp

## 5

awards won by the Brazilian party

criatividade e inovação  
**FEBRACE**  
19ª feira brasileira de  
ciências e engenharia

REGENERON  
**ISEF**  
A PROGRAM OF  
SOCIETY FOR SCIENCE  
VIRTUAL | 2021

FORMATO VIRTUAL

Brasil conquista 5 prêmios na  
maior feira internacional de  
ciências!

Confira os jovens cientistas premiados!

Ana Carolina - Finalista ISEF 2021  
ID MCR0034

Regeneron ISEF Virtual, de 16 a 21 de maio.  
Venha Visitar!

REGENERON  
**ISEF**  
SOCIETY FOR SCIENCE  
VIRTUAL | 2021

Guilherme - Finalista ISEF 2021  
ID ENMC065

Regeneron ISEF Virtual, de 16 a 21 de maio.  
Venha Visitar!

REGENERON  
**ISEF**  
SOCIETY FOR SCIENCE  
VIRTUAL | 2021

## 2021

The performance of the Brazilian delegation was excellent, and the students won five awards in total in the 2021 edition of the Regeneron ISEF. The following is the list of selected students and projects, as well as the awards received:

Project	Members	City/State	Awards
Alternative Technology for Crop Improvement and Potentiation of Secondary Metabolites in Coriander Plants Through <i>Dunaliella Salina</i> Biomass Incorporated in Bioplastic Films, Phase II	Yasmin Barreto Teles Fonseca Nicole Melo de Almeida	Salvador – BA	Fourth place in Plant Sciences (PLNT)
Fungitoxic Potential of Different Plant Extracts on the in vitro Development of the Fungus that Causes Anthracnose in Banana Fruits, Phase IV	Ana Carolina Gonçalves Selva	Toledo – PR	Fourth place in Microbiology (MCRO)
The Development of a Low-Cost Open-Source Underwater Remotely Operated Vehicle for Coral Mapping	Guilherme Beyruti Surányi	São Paulo – SP	
Automated Water Analysis: A Water Drone Developed with Microcontrollers	Rafaela Curcio	Jundiaí – SP	Third place in Environmental Engineering (ENEV)
System for Inertial Data Collection and Data Visualization for Individualized Medicine with Focus on Parkinson's Disease	Wanghley Soares Martins	Brasília – DF	
Development of Immersive Technologies Applied to Astrobiology Teaching	Henrique Rodrigues Hissa Amorim	São Paulo – SP	Honorable mention by the International Council on Systems Engineering – INCOSE
Evaluation of the Repellent Potential of Noni ( <i>Morinda citrifolia</i> ) Fruit Extract Applied in Food Packaging to Inhibit Weevils ( <i>Sitophilus spp.</i> and <i>Tribolium castaneum</i> )	Igor Guissane Bruno João Victor Ramos Sidrônio dos Santos Diego Soares Ribeiro	Aparecida do Taboado – MS	
Using <i>Zophobas morio</i> to Build a Biodigester for Polymers Decomposition	Katrina Medeiros Viana Antonio Danilo Gonçalves do Vale Alaíde Hellen Bezerra Silva	Iracema – CE	
FIDERE: Circular Economy App to Support Thrift Stores and Women's Associations in the South of Brazil	Victória Leal Altmayer Silva	Osório – RS	Fourth place in Behavioral and Social Sciences (BEHA)

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Pedro Henrique Costa, Adriano Leonardo de Jesus, da Silva, Lucas Henrique Pereira, Silva, Thales Vinícius de Oliveira, Thales Vinícius de Oliveira, Thales Vinícius de Oliveira.

**Projeto:** Construção de um dispositivo para a detecção de poluentes, gás, álcool e dióxido de carbono.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*

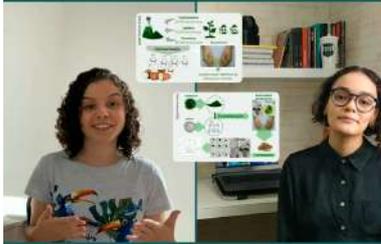


**Alunos:** Raphael Sousa Mendes, Gabriel Henrique Moura Oliveira.

**Projeto:** Desenvolver uma tecnologia de grande escala de teste para produtos industrializados com foco em segurança alimentar.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Pedro Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Tecnologia alternativa para o ensino presencial e presencialização de conteúdos educacionais de qualidade em uma sala de aula de Tecnologia, utilizando-se de realidade aumentada.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*

**#384 - Avaliação do potencial repelente do extrato dos frutos de mandioca (Manihot citrifolia) aplicado em embalagens alimentícias para contensão de carunchos (Stegobium spp. e Tribolium castaneum)**



**Alunos:** Igor Caldeira de Souza, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Avaliação do potencial repelente do extrato dos frutos de mandioca aplicados em embalagens de alimentos para contensão de carunchos (Stegobium spp. e Tribolium castaneum).

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Desenvolvimento de uma plataforma robótica de robótica open source de baixo custo para o ensino de robótica.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Desenvolvimento de um aplicativo de economia circular de produtos e materiais de baixo custo.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Tecnologia de realidade virtual em educação.

**FEBRACE**  
17º Fórum Brasileiro de Inovação e Engenharia

**Conheça os projetos dos estudantes brasileiros que participam da ISEF 2021.** *Inspire-se e desenvolva seu projeto! Você também pode chegar lá!*



**Alunos:** Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Desenvolvimento de uma plataforma robótica de robótica open source de baixo custo para o ensino de robótica.

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**Alunos:** Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira, Gabriel Henrique Moura Oliveira.

**Projeto:** Análise de água potabilizada utilizando-se de um filtro de baixo custo.

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## 2022

In Regeneron ISEF's 2022 edition, the Brazilian delegation overcame itself again, and the students received five awards, including an honorable mention. The following is the list of selected students and projects, as well as the awards received:

Project	Students	City – State	Received Awards
Animated Legends: Recovering the Imaginary From the Amazonian Region City of Igarape-Miri Through Audiovisual Productions Based on Oral Narratives	Eloise Cristiny Quintal Ferreira Oscar Cabral Paraguassu	Igarapé-Miri - PA	Third place in Behavioral and Social Sciences
Anti-Skeptical: Clusterization of the Hofstede Cultural Matrix via Machine Learning Methods Applied to the Analysis of Anti-Vax Behavior in Brazil	Pietro Andrade Quinzani João Pedro Sassi Sandre	São Paulo - SP	Fourth place in Behavioral and Social Sciences
Biogrape: Bacterial Cellulose Biosynthesis Using Grape Byproduct, Phase II	Amanda Ribeiro Machado	Osório - RS	
Optimization of Magnetic Nanoparticle Load in Fluorescent Magnetic Nanocarriers for Application in Magnetic Hyperthermia	Anny Gabriela Marçal de Carvalho Araújo	Goiânia - GO	
Study on Ultraviolet Protection in Cotton Fabric Dyed with Vegetable-Based Colorants	Ana Clara Machado Silva	Divinópolis - MG	
Educaccess – Software for Transcribing Video Lessons Into Compact PDFs Using Keyframe Extraction, Summarization and Transcription Algorithms	Ligia Keiko Carvalho	Campinas - SP	<ul style="list-style-type: none"> <li>• Honorable Mention</li> <li>• Award to participate in summer school “Web Valley”</li> <li>• Award of \$5,000 for outstanding project in the systems software category</li> </ul>
Digital Incentive Spirometer for the Treatment of Post-Covid Patients with Motivational Graphical Interface and Telemonitoring Support	Enso Matheus Papali de Carvalho Ana Elisa Brechane da Silva	Santa Rita D'Oeste - SP	
River Water Purification Process with <i>Moringa oleífera Lam.</i> Tablet	Maria Eduarda Prates Brandão Ana Luiza Nogueira Oshiro Sarah Fernandes de Oliveira	Barreiras - BA	
Antibacterial Potential of Brazilian Green Propolis in Periodontitis Treatment	Maria Eduarda Silva Ferreira	Uberlândia - MG	

Still, in 2022, as part of the benefits offered by STEAM TechCamp Brasil, four program participants were selected to accompany the Brazilian delegation to the Regeneron ISEF 2022. These participants also had all expenses with registration, airline tickets, transportation, accommodation and food covered by the program.

The following is the list of STEAM TechCamp 2022 participants that were selected to participate in the Regeneron ISEF 2022:

Name	School	City - State
Eliete Grasiela Both	IFMT – Campus Barra do Garças	Barra do Garças - MT
Carlos Nascimento	SEDUC/PI	Teresina - PI
Marcelo Almeida	Escola Técnica Estadual Agrícola Antonio Sarlo	Campos dos Goytacazes - RJ
Rodrigo Queiros de Almeida	IFCE – Campus Juazeiro do Norte	Juazeiro do Norte - CE







**small grants**



# small grants

STEAM TechCamp Brasil participants have the opportunity to transform their proposed initiatives developed during the immersive week into concrete proposals that could be subsequently implemented in their school activities.

The projects developed by the participants need to demonstrate innovation in the active learning of STEAM, disseminate digital skills and expand collaboration among different schools and municipalities.

As part of the benefits offered by the program and aiming to stimulate even better results in the most diverse regions of Brazil, these projects can be submitted to Small Grants offered by STEAM TechCamp Brasil. They are then evaluated by a technical-scientific committee composed of representatives from the U.S. Embassy in Brazil, the University of São Paulo and LSI-TEC. The best proposals are selected to receive financial support to initiate the projects in their communities. The fourth edition's deadline to implement the proposals was from June to December 2021, and the fifth edition's deadline was from July to December 2022.

## 2021

14

proposals selected

14

states benefited

4,573

students and teachers reached

\$46.87 USD

amount invested in each person reached by the program

\$21,710.00 USD

amount distributed by Small Grants

## 2022

15

proposals selected

15

states benefited

15,267

students and teachers reached

\$5.87 USD

amount invested in each person reached by the program

\$23,366.00 USD

amount distributed by Small Grants

## Proposals selected in 2021 to receive the amount of US\$ 1,670 per project

State	Leader	Co-leader
Acre	Antonio Fernandes de Souza Filho	Jociley da Silva Lima
Amapá	Aldeni Melo de Oliveira	Carla Augusta da Costa Santos de Castro
Amazonas	Raphael Xavier Barbosa	Jesiane Andrade Spíndola
Bahia	Rafaelle da Silva Souza	Abílio Cláudio do Nascimento Peixoto Adriana Santos Sousa
Ceará	Francisco Rodrigo de Lemos Caldas	Katiany do Vale Abreu
Goiás	Christiane Borges Santos	Rubio Dorneles de Bessa Denise Cristina Bueno
Mato Grosso	Fabiula Torres da Costa	Hozana Donatila Delgado
Minas Gerais	Selmara Ribeiro da Silva	Mônica de Oliveira Ribeiro Couto
Pará	Adriana da Conceição Barros do Rosário	
Pernambuco	Milton Matos Rolim	João Carlos Félix de Menezes
Piauí	Izael Araujo Lima	Maria Beatriz Dias Coutinho
Rio Grande do Norte	Kleiton Jullian Soares dos Santos	Raphael Bender Chagas Leite
Rio Grande do Sul	Edson Fabrício Dias da Silva	Magna da Gloria Silva Lameiro Marla Heckler
Tocantins	Erick Henrique Silva Góes	Marilene Pereira Guimarães

## Proposals selected in 2022 to receive the amount of US\$ 1,669 per project

State	Leader	Co-leader
Acre	Anderson de Paiva Melo	Delbileny Lima de Oliveira
Amazonas	Lincoln de Sousa Araújo Filho	José Victor Bezerra Teixeira
Ceará	Rodrigo Queiros de Almeida	Pedro Ferreira dos Santos Júnior Francisca Claudeane Matos Alves
Distrito Federal	Sylvana Karla da Silva de Lemos Santos	Alexandre Santos Jeronimo da Costa Juliana Alves de Araújo Bottechia
Espírito Santo	Laís Jubini Callegario	Emerson Fraga Comério
Goiás	Késia de Souza Cruz	Divino Alves Bueno
Maranhão	Almir Souza e Silva Neto	Sildiana Nascimento Cerqueira
Mato Grosso	Pedro Araujo Campos	Eliete Grasiela Both Cláudia Inês Dahmer
Mato Grosso do Sul	Marcia Ferreira Cristaldo	Lucineide Maria Miranda Kassia Karoline Rosa do Valle
Minas Gerais	Fernanda Nobre Amaral Villani	Cristina Rocoe Vianna Nivea Cristina de Araujo Viana
Pará	Haroldo de Vasconcelos Bentes	Antonio Fonseca da Cunha
Pernambuco	Gustavo Santos Bezerra	Gabriel Pimenta Carneiro Campelo
Piauí	Carlos Henrique Leite do Nascimento	Maria Aparecida de Moura Amorim Sousa
Rio de Janeiro	Marcelo Barbosa Almeida	Roni Costa Ferreira
Rio Grande do Sul	Luciana Zanchettin	Kelen Terra do Amaral Barum





**program's reach**



# program's reach

“More and more ideas come up every day. I’m looking forward to putting them all into practice.”



**João Carlos Félix de Menezes**, State School Teacher, Pernambuco, STEAM TechCamp 2021

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Based on the data collected from surveys conducted through Google Forms applied to the participants from the five editions (2018–2022) of the STEAM TechCamp Brasil and information gathered from reports submitted by the grantees of the Small Grants program, we are proud to conclude that our primary goal of expanding with each new edition has been achieved.

Through the participants of the program's five editions, we also found substantial evidence demonstrating that STEAM TechCamp Brasil has trained teachers and managers who are now in contact with teachers and students from schools throughout Brazil. Thus, we can affirm that we have created an extensive network of multipliers of the STEAM active learning methodology throughout Brazil, and the number of contacts is increasing with each new edition of the program.

In its five editions, the program influenced and motivated local actions. STEAM TechCamp participants throughout Brazil have conducted a total of **370** activities.

**36%**

Conducted courses and training activities

**27%**

Hosted a scientific exhibition

**21%**

Conducted educational activities

**16%**

Hosted a local TechCamp

Total numbers of students, teachers, schools and cities indirectly reached through local actions after five editions of the STEAM TechCamp Brasil.

**156,590**

students

**36,331**

teachers

**4,539**

schools

**1,704**

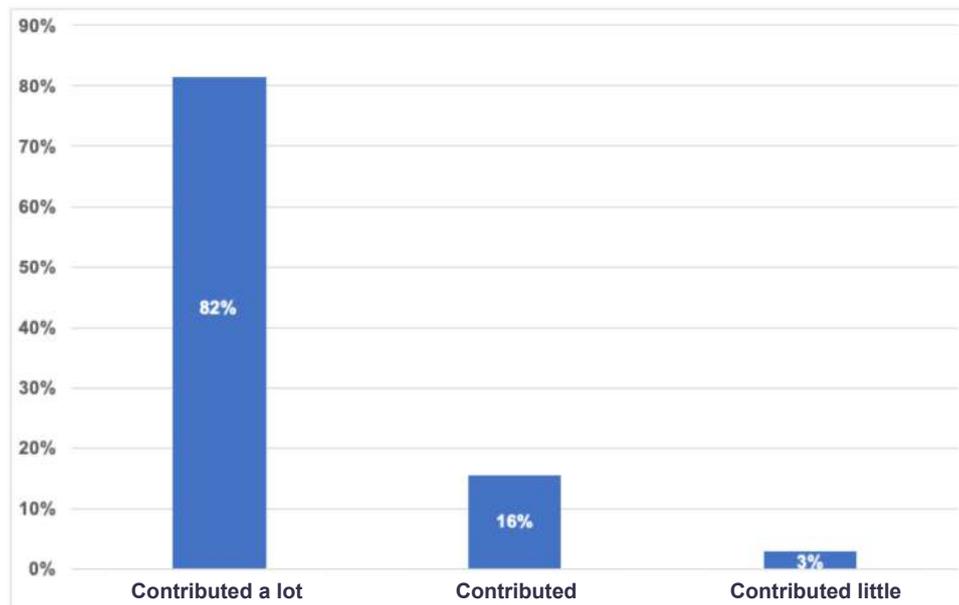
cities

**27**

Federal Units

*The numbers above represent the sum of the participants in the local actions during the 2018-2022 editions. They do not exclude the possibility that the same student, teacher or school has been impacted in more than one program edition.*

## Did the program contribute to changing the participant's teaching practices and professional activities?



Percentage of total answers (128 answers). The survey was conducted via Google Forms with the participants of the 2018-2022 STEAM TechCamp Brasil editions.

## STEAM TechCamp 2021-2022 investment and outreach

Year	Amount invested in the program in USD	Directly reached people	Indirectly reached teachers	Indirectly reached students	Total of reached people	Amount invested in each person in USD
2021	\$217,128.90	59	1,056	3,517	4,632	\$46.87
2022	\$90,000.00	68	1,873	13,394	15,335	\$5.87

The amount invested in 2022 does not include the cost of expenses with the participation of the Brazilian delegation in ISEF.

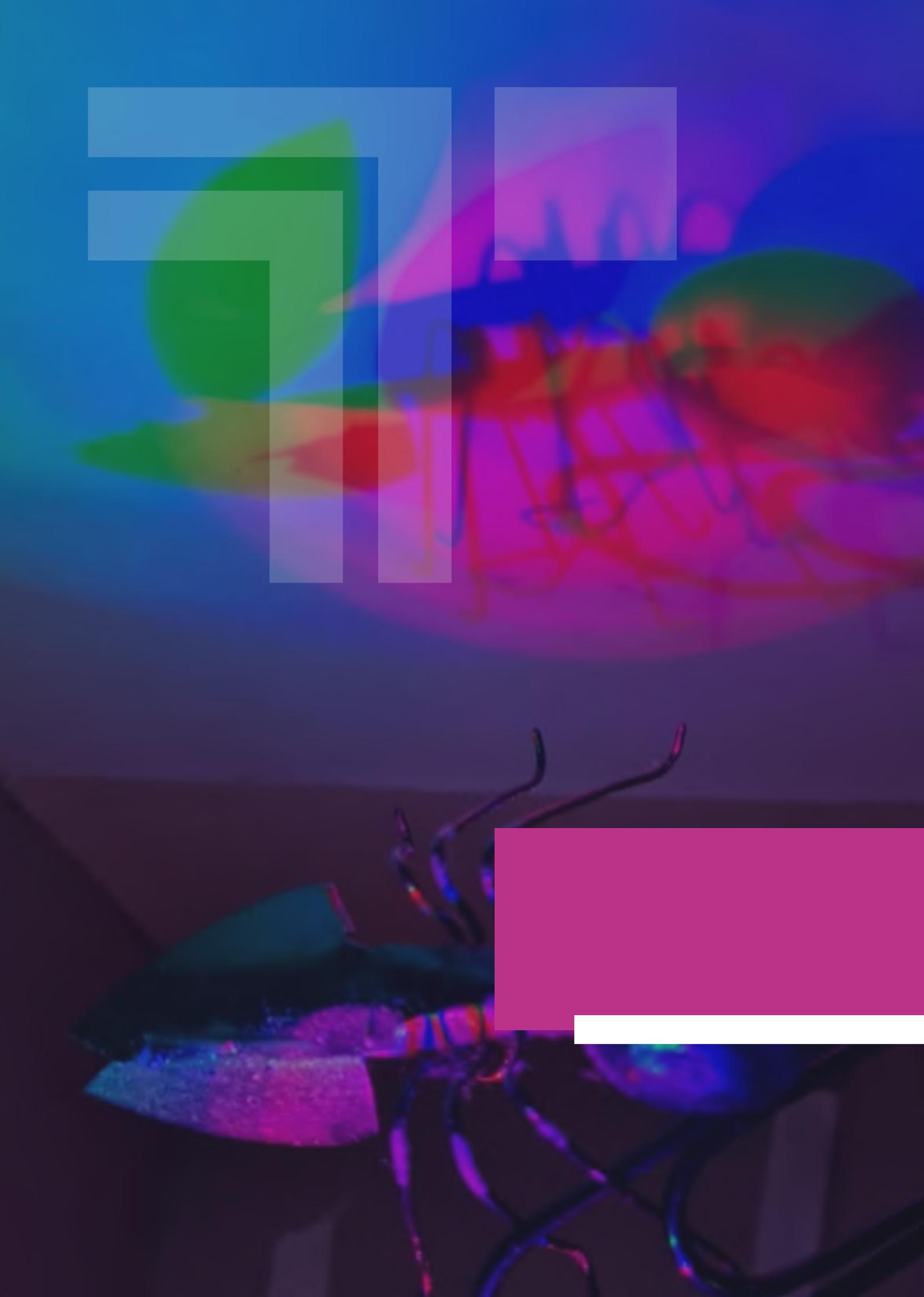
## Total investments and outreach of STEAM TechCamp for the 2018-2022 editions

Amount invested in the program in USD	Directly reached people	Indirectly reached teachers	Indirectly reached students	Total of reached people	Amount invested in each person in USD
US\$ 852,692.90	304	36,331	156,590	188,527	\$4.52

**Number of teachers, students, cities, and schools reached in each state that received Small Grants in 2021 and 2022 and the amount invested in each person reached.**

State	Teachers		Students		Schools		Cities		Small Grants in USD		Total of people indirectly reached		Amount invested in each person in USD	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
AC	7	18	66	1,200	10	15	6	6	\$1,670.00	\$1,669.00	73	1,218	\$22.88	\$1.37
AL	1	5	25	250	1	1	2	1	-	-	26	255	-	-
AM	150	2	0	59	45	1	1	1	\$1,670.00	-	150	61	\$11.13	-
AP	50	12	12	2,500	45	3	5	1	\$1,670.00	-	62	2,512	\$26.94	-
BA	30	406	300	812	15	406	3	417	\$1,670.00	-	330	1,218	\$5.06	-
CE	71	26	100	248	5	7	1	2	\$1,670.00	\$1,669.00	171	274	\$9.77	\$6.09
DF	0	11	0	31	0	3	0	1	-	\$1,669.00	0	42	-	\$39.74
ES	3	35	120	140	1	15	1	1	-	\$1,669.00	123	175	-	\$9.54
GO	200	101	150	949	40	11	4	4	\$1,670.00	\$1,669.00	350	1,050	\$4.77	\$1.59
MA	0	30	0	200	0	7	0	1	-	\$1,669.00	0	230	-	\$7.26
MG	13	7	30	200	4	7	1	5	\$1,670.00	\$1,669.00	43	207	\$38.84	\$8.06
MS	0	16	0	60	0	8	0	2	-	\$1,669.00	0	76	-	\$21.96
MT	93	152	36	2,029	126	5	30	20	\$1,670.00	\$1,669.00	129	2,181	\$12.95	\$0.77
PA	17	300	68	600	17	120	9	2	\$1,670.00	\$1,669.00	85	900	\$19.65	\$1.85
PB	40	1	500	17	2	1	2	1	-	-	540	18	-	-
PE	18	65	400	900	10	63	3	4	\$1,670.00	\$1,669.00	418	965	\$4.00	\$1.73
PI	140	30	0	0	60	30	10	22	\$1,670.00	\$1,669.00	140	30	\$11.93	\$55.63
PR	4	0	70	0	1	0	2	0	-	-	74	0	-	-
RJ	1	7	200	20	1	2	1	1	-	\$1,669.00	201	27	-	\$61.81
RN	0	300	0	1,000	0	300	0	167	-	-	0	1,300	-	-
RO	92	2	1,000	240	86	1	3	1	-	-	1,092	242	-	-
RS	100	30	150	1,200	50	40	497	15	\$1,670.00	\$1,669.00	250	1,230	\$6.68	\$1.36
SC	0	60	0	0	0	46	0	2	-	-	0	60	-	-
SE	1	6	120	120	1	1	1	1	-	-	121	126	-	-
SP	10	245	70	559	7	254	1	1	-	-	80	804	-	-
TO	15	6	100	60	2	2	1	1	\$1,670.00	-	115	66	\$14.52	-
<b>Total</b>	<b>1,056</b>	<b>1,873</b>	<b>3,517</b>	<b>13,394</b>	<b>529</b>	<b>1,349</b>	<b>570</b>	<b>680</b>	<b>\$21,710.00</b>	<b>\$23,366.00</b>	<b>4,573</b>	<b>15,267</b>	<b>\$4.75</b>	<b>\$1.53</b>

*Data were collected from participants of the 2021 and 2022 editions through Google Forms surveys.*





**success stories -  
local impacts**



# success stories - local impacts

“Participating in the TechCamp gave me a breath of inspiration!”



**Milton Matos Rolim,**  
*Secretariat of Education of  
the State of Pernambuco,  
STEAM TechCamp 2021*

After the Regeneron ISEF 2021, Roseli de Deus Lopes, professor at the Polytechnic School at the University of São Paulo and scientific coordinator of the STEAM TechCamp Brasil, praised the importance of multiplying the learning acquired in opportunities such as the international fair and the TechCamp program, because, according to her, in this way, “each opened door takes another crowd of teachers along with it. We need to mobilize intelligence of all ages throughout the country. If we act alone, we won’t be able to change our reality. It’s all of us together, sharing opportunities.”

In addition to the excellent fruits harvested from previous editions, the 2021 and 2022 editions also generated excellent results. Managers from the secretariats and teachers who have participated in the program have used STEAM TechCamp resources to implement new actions or improve existing initiatives and projects in their communities, focusing on the active learning approach of the STEAM methodology for the teaching and learning process.

Here, we highlight some of the success stories generated by the 26 Federation Units that were able to implement the planned actions based on the lessons learned during the STEAM TechCamp Brasil 2021 and 2022. It should be pointed out that, unfortunately, some Federation Units could not carry out their projects in both years due to difficulties related to the increase in work caused by the return of face-to-face activities after the Covid-19 pandemic.

More details about the success stories from the five editions and local action records can be found on the website below (content in Portuguese):

<https://stemtechcampbrasil.febrace.org.br/atividades-regionais>

## Acre

Contemplated by the STEAM TechCamp 2021 Small Grants, participants from the state of Acre held the first edition of STEAM Tech Camp Acre, with the theme MAKER STUDENTS - Automation in Action. In addition, they created seven modules to compose a robotics course, held an introductory Arduino mini-course using the Tinkercad simulator and taught introductory robotics and IoT workshops.

With the resources of the STEAM TechCamp Brasil 2022 Small Grants, the teachers organized the 2nd STEAM TechCamp Acre and developed the Robotics at School Project, with an exhibition of intelligent objects, an automation and Internet of Things workshop and an introduction to robotics using electronic components. Additionally, they organized a complete robotics course and started the Robotics in Action Club.

## Alagoas

Using the experiences from the week of online activities, in 2021, teacher Sheyla Karolina sought partnerships and managed to include STEAM activities at the school where she works in the city of Palmeiras dos Índios - AL.

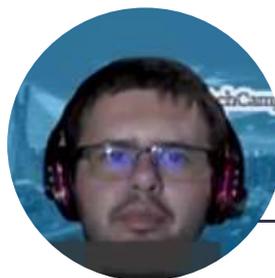
In 2022, teacher Jenivaldo Lisboa de Araújo offered an elective subject of Fundamentals in Astronomy at the school where he works and developed actions in a school astronomy club, in which he encouraged the use of technological resources in the development of a scientific initiation activity. He also organized a Science Exhibition at the school to present the projects developed during the elective and in the astronomy club.

## Amapá

Amapá participants organized, in 2021, the first edition of TechCamp Tucujus: Me, STEAM and Innovation Marathon using the resources from the Small Grants. The event was held entirely in a virtual format, and 50 teachers from the state network participated.

In 2022, in the city of Macapá, teacher Elender Keuly de Souza coordinated the Arduino Day events, the second Tumucumaker Technological Meeting and two robotics tournaments.

**“STEAM TechCamp Brasil is a breath of life for Brazilian science education!”**



**Jenivaldo Lisboa de Araújo**, State School Teacher, Alagoas, STEAM TechCamp 2022

## Amazonas

Participants from the state of Amazonas in 2021 managed to bring managers, pedagogues and teachers together in a training workshop, in which lectures, project shows and dialogue circles were held among the participants.

In 2022, teacher Lincoln de Sousa Araújo Filho encountered difficulties and could not carry out the proposed actions of the STEAM TechCamp Small Grant. However, he used the knowledge acquired in the program to support other teachers in guiding scientific projects.

## Bahia

In 2021, participants from the state of Bahia created the STEAM MAKER Education Laboratory at the IFBA Seabra campus, with the participation of high school students from the state network. In addition, a Scientific Book Club, an Arduino programming initiation project and a virtual scientific project exhibition were created.

In 2022, teachers Rosemary Lopes Soares da Silva and Fernanda Pereira de Brito performed activities with teachers linked to science clubs in state schools, in addition to activities in a group dedicated to studying, researching and performing educational experimentation at the Anisio Teixeira Institute, which is part of the State Department of Education aiming at the continuing education of teachers.

**“The STEAM TechCamp activities add many benefits to my pedagogical practice and allow me to make the classroom a more welcoming, more creative, more challenging space for students, enriching the learning and teaching process.”**



**Adriana Santos Sousa,**  
State School Teacher,  
Bahia, STEAM TechCamp  
2021

## Ceará

With the resources of the STEAM TechCamp 2021 Small Grants, representatives of Ceará held the STEAM TechCamp Ceará, which teachers from the state network attended. The program, held in a virtual format through Google Meet, was composed of lectures and mini-courses covering the following topics: STEAM Approach, Innovation and Education, Computer Literacy, Women in Science, and Digital Media.

Using resources from the STEAM TechCamp Brasil 2022 Small Grants, teachers Rodrigo Queiros de Almeida and Pedro Ferreira dos Santos Júnior organized a training event aimed at teachers and students of undergraduate and primary and secondary education in the public network of the State of Ceará. Held in a hybrid way, with lectures broadcasted on YouTube and face-to-face “hands-on” workshops, the event aimed to promote the transdisciplinary integration of science, technology, engineering, arts and mathematics, proposing a form of teaching based on the student’s autonomy, creativity and protagonism, through the STEAM approach.

## Distrito Federal

In the Federal District, teachers Sylvana Karla da Silva de Lemos Santos, Juliana Bottechia and Alexandre Costa used the resources of the STEAM TechCamp Brasil 2022 Small Grants to carry out the 1st STEAM TechCamp DF, offering three workshops focused on STEAM (robotics, Scratch and launching rockets) to students from three public schools in the Federal District.

## Espírito Santo

In the state of Espírito Santo, teachers used the knowledge acquired at STEAM TechCamp 2021 to develop activities such as the Maker Challenge: creating an air-powered cart; the scientific recess: presentation of scientific experiments; the creation of the “Fanzine”, a magazine for the dissemination of scientific content; the development of works using light projections; and a robotics course offered by IFES teachers to students from the state network.

With the resources from the STEAM TechCamp Brasil 2022 Small Grants, teachers from Espírito Santo organized the 1st Science Fair in Sul Capixaba, a teacher training course in STEAM, a science club with STEAM workshops and taught classes with the PBL methodology.

## Goiás

In the state of Goiás, in 2021, representatives organized the II STEAM TechCamp Goiás, which had the participation of 30 teachers from the state education network. Lectures and workshops were held at the event, and spaces for exchanging experiences were provided.

In 2022, teacher Kesia de Souza Cruz, with the help of teacher Divino Alves Bueno, used the resources of the STEAM TechCamp Brasil 2022 Small Grants to organize the first Science and Technology Fair for full-time schools, which, in addition to exhibiting projects, it had seven workshops, visitation environments and robotics competitions. They also organized an elective course on the Internet of Things, programming workshops for Christmas decoration, a workshop on using a 3D printer, training teachers to guide scientific projects and the Itinerant Robotics project, which took Microbit workshops to schools from the interior of Goiás.

## Maranhão

In Maranhão, teachers Almir Souza e Silva Neto and Sildiana Cerqueira used the resources from the STEAM TechCamp Brasil 2022 Small Grants for the Maramaker STEAM TechCamp project, which included an exhibition of scientific projects with students from municipal, state, federal and private schools, in which the students presented the projects developed in their schools within the STEAM themes. Additionally, short courses on robotics and 3D printing were held.

## Mato Grosso

Using the resources of the STEAM TechCamp 2021 Small Grants, teachers Fabiula and Hozana prepared a series of workshops and lectures for the training of teachers in the state network. In addition, they organized the II Virtual Scientific Exhibition STEAM, in the virtual format, with the participation of 86 students presenting their projects.

With the resources of the STEAM TechCamp Brasil 2022 Small Grants, the teachers organized the III Virtual Scientific Exhibition STEAM, which, in addition to the exhibition and project awards, offered lectures on the STEAM interdisciplinary approach and the 2030 Agenda and the Sustainable Development Goals, workshops for teachers and evaluators and a 3D printer assembly workshop for students from five selected schools.





## Mato Grosso do Sul

In Mato Grosso do Sul, teachers used the knowledge acquired during the immersion week and the resources from the STEAM TechCamp Brasil 2022 Small Grants to carry out the FECIAQ (Science and Technology Fair of Aquidauana MS). In addition, they organized courses and workshops on robotics and the STEAM approach.

## Minas Gerais

Representatives from Minas Gerais, in 2021, implemented online courses to teach the concepts of Physical Programming and 3D Printing to students at Lar dos Meninos. The courses were offered after school hours, and the final projects developed during the course followed the STEAM approach, integrating the basic curriculum subjects and functioning as a pilot project in the state.

In 2022, teachers Fernanda Nobre Amaral Villani, Cristina Roco Vianna and Nivea Cristina de Araujo Viana used the resources of the STEAM TechCamp Brasil 2022 Small Grants for the UAI-STEAM project, a set of actions to encourage and share experiences that use the STEAM approach and the maker culture in schools in Minas Gerais. Among the actions developed, we highlight the creation of the UAI-STEAM portal for disseminating STEAM and maker activities developed by teachers and students of primary and secondary education in Minas Gerais. In addition, we highlight the annual UAI-STEAM Exhibition, which featured online preparatory workshops for students and the distribution of maker kits.

**“Being a STEAM educator is having the opportunity to understand a new way of learning by making; create local, regional and global connections; and assume the responsibility of engaging educators from Minas Gerais in this important action to transform education, which gives students the possibility to apply their knowledge to improve the world.”**



**Mônica de Oliveira Ribeiro Couto**, Secretariat of Education of the State of Minas Gerais, STEAM TechCamp 2021

## Pará

In partnership with participants from previous STEAM TechCamp editions, representatives from the state of Pará, in 2021, organized the IV TechCamp Pará, with a virtual robotics championship covering 32 municipalities in the state of Pará.

With the resources of the STEAM TechCamp Brasil 2022 Small Grants, teachers Antonio Fonseca da Cunha and Haroldo Bentes, together with participants from other editions of the STEAM TechCamp, organized the V TechCamp Pará 2022, which took place virtually and featured workshops, an exhibition of projects and a robot championship. Moreover, they promoted training for teachers and workshops for students on the STEAM approach.

## **Paraíba**

In Paraíba, in 2022, teacher Leonardo Maximino Bernardo taught an elective robotics course in which he guided scientific projects that participated in the National Science and Technology Week, representing his state.

## **Paraná**

In 2021, representatives from the state of Paraná organized a course, a face-to-face event (Expoingá) about STEAM, remote programming training with the Internet of Things using Arduino, Raspberry and Esp32 and a 3D printing workshop (face-to-face).

## **Pernambuco**

In Pernambuco, teachers Gustavo Santos Bezerra and Gabriel Pimenta used the resources of the STEAM TechCamp 2022 Small Grants to organize the STEAM TechCamp Sertão do Pajeú - PE and the VI edition of the FECIT (Science, Technology and Innovation Fair). In addition, throughout the year, they held maker culture and robotics workshops and programming courses.

## **Piauí**

In 2021, in Piauí, the I Steam Piauí was held with the participation of 50 teachers from 10 cities in the state. During the project, workshops were held on topics related to STEAM.

In 2022, teachers used the Small Grants resources to carry out the II STEAM TechCamp Piauí, which took place online and had 30 teachers from different cities from the interior of the State who participated in lectures and workshops for a week. At the end of the week, participants presented proposals/projects for using the STEAM approach in the schools they work.

## **Rio de Janeiro**

In 2021, teachers from Rio de Janeiro used the knowledge acquired during the week of online activities to apply maker room technologies to solve problems and develop projects with students.

With the resources of the STEAM TechCamp Brasil 2022 Small Grants, teachers organized robotics workshops for high school students and developed a project to monitor agricultural areas using drones.

## **Rio Grande do Norte**

Teacher Emilia Cristina Maia Farache promoted lives and workshops with themes related to creative learning and programs pertaining to STEAM in 2022.

## Rio Grande do Sul

In 2021, representatives from Rio Grande do Sul organized the I TechCampo STEAM RS 2021, which featured lectures, project reports and workshops to stimulate STEAM, in addition to the qualification of projects carried out in secondary schools and enrolled in the STEAM TechCampo RS 2021 Show.

In 2022, with the help of educators who participated in previous editions of the STEAM TechCamp, teachers Luciana Zanchettin and Kelen Terra do Amaral Barum used the STEAM TechCamp Small Grants resources to develop a training project for managers from ten Nucleus of Educational Technologies in the state of Rio Grande do Sul and ten teachers from primary and secondary education schools. The training, lasting 40 hours, included the STEAM approach, with a methodology based on the proposal of the Brazilian Creative Learning Network.

## Rondônia

Representatives from Rondônia, in 2021, held workshops with themes related to STEAM and produced content on robotics and developing activities using the Arduino and Microbit platforms.

In 2022, teacher Maicon Maciel Ferreira de Araújo developed an elective course on programming and robotics to teach physics, in which he guided scientific projects. In addition, he promoted workshops for students and gave lectures related to the STEAM theme.

## Santa Catarina

In the State of Santa Catarina, in 2022, teacher Luiz Alessandro da Silva used the knowledge acquired during the STEAM TechCamp Brasil training week to provide maker and STEAM training to teachers in the state education network.

## São Paulo

In São Paulo, in 2021, state representatives trained students to introduce them to computer language using Scratch and mentored projects. They also formed the group of girls @steameninas, which focused on empowering girls in the STEAM area through activities with Scratch, Maker actions and using Microbit. In addition, they trained 6 PEI schools, with around 60 students, with the support of the Garotas STEM-British Council project, Fundação Carlos Chagas and CNPq.

In 2022, manager Tatiana Rossi Alvarez participated in the organization of the Science Fair of the State Schools of São Paulo (FeCEESP), a pedagogical action developed by the Secretariat of Education of the State, aiming to stimulate and promote the training of students in the state education network, inserting them in the context of a pre-initiation to the scientific research in the different areas of knowledge.

## Sergipe

Teachers from the state of Sergipe used the knowledge acquired to mentor high school students' projects in 2021.

In 2022, teacher Antonio Cavalcante de Carvalho organized the Junino Project, Industrial Automation and Culture, which worked on developing games typically played during the celebrations in June using technology. In addition, he taught a course on creating projects using Arduino and guided the development of scientific research.

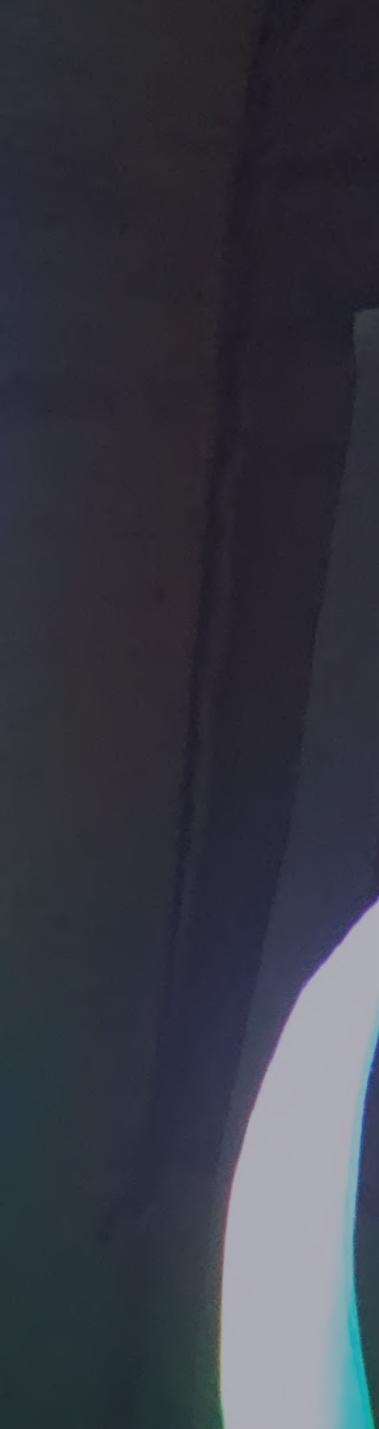
## Tocantins

In 2021, the state of Tocantins organized the I STEAM Tocantins, which featured lectures, and workshops on modeling and printing 3D structures for drones with Blender, drone programming with Arduino and Gamification with STEAM and assistive technologies in special education. The activities involved elementary and high school students and teachers.

In 2022, teacher Marco Vinicius Gomes Dutra organized hikes to deepen the knowledge of natural sciences, in which educational robotics classes were held in analog and digital form, as well as the construction of models of sustainable cities using STEAM methodology, Arduino and electronic circuits. In addition, he guided projects that participated in the FECIT (Entrepreneurship, Science, Innovation and Technology Fair).







# testimonials



# testimonials

“We are in the fourth consecutive edition of the program, and all the people who participated in it, together, can make a big difference in the Brazilian education system. I want to thank the Embassy and Consulates for this partnership, the Polytechnic School of the University of São Paulo, the LSI-TEC team and especially the 3M Institute and all the educational institutions that support us or participate in the program in some way. This program only brings us joy and what we do here is very important, bringing together people who are leaders in their schools and Secretariats, who have the ability to carry out large-scale projects, knowing what different Secretariats are doing. All this is associated with the challenges that the speakers and workshops are going to propose to them during the program, plus the connections with participants from previous years, and that gives us much more strength to develop proposals that can have more impact on education.”



**Roseli de Deus Lopes,**  
*STEAM TechCamp Brasil*  
*Scientific Coordinator*

“I want to congratulate you all because what you have accomplished this week and the previous weeks has been absolutely amazing. You must be very proud of all that you have already achieved. Congratulations on all the performance and work, and I am very excited to talk to you more in the future about new opportunities like this.”



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**Todd Miyahira**, *Attaché for Education and Cultural Affairs at the U.S. Embassy in Brazil, Regeneron ISEF 2021*

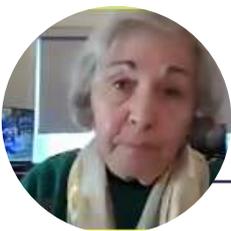
“You know that idea that the student lost the pleasure of learning science? STEAM comes to recover that feeling because we need this student to like science. And one way that this happens very often in STEAM programs and proposals is that this methodology works with challenges. Whenever we talk about STEAM, there is something hands-on along with it.”



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**Gustavo Pugliese**, *Pedagogical Consultant at Foreducation EdTech, STEAM TechCamp 2021*

“It is said that a professor makes more decisions per minute than a neurosurgeon. In fact, I think teaching is like rocket science.”



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**Rachel Lotan**, *Emeritus Professor and Former Director of the Stanford Teacher Education Program (STEP), STEAM TechCamp 2021*

“We have a subject with two gateways. Some people are more attracted to the math side, others are more drawn to the hands-on and artistic side, but both are absorbed and feel a connection and an identity with these types of activities.”



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**Amanda Fox**, *Specialist in the English Language Applied to STEAM, STEAM TechCamp 2021*

“It is a privilege to be able to get hands-on in the workshops, watch the panels and share ideas!”



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**Marilene Pereira**  
*Guimarães, State School  
Teacher, Tocantins,  
STEAM TechCamp 2021*

“This is an opportunity for much learning, and I am more and more delighted by the event.”



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**Maria do Socorro Braga Reis**, Secretariat of Education of the State of Pará, STEAM TechCamp 2021

“I have ideas bubbling in my head!”



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**Selmara Ribeiro da Silva**,  
*State School Teacher,  
Minas Gerais, STEAM  
TechCamp 2021*

“The event awakens the desire to learn. Waters the passion for teaching without us ever ceasing to be a student.”



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**Magna da Gloria Silva Lameiro**, State School Teacher, Rio Grande do Sul, STEAM TechCamp 2021

“Excellent integration and professional development to improve scientific education in our country.”



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**Roberto Cesar Cucharero Peregrina**,  
*State School Teacher,  
Rio de Janeiro, STEAM  
TechCamp 2021*

“Participating in STEAM TechCamp is fueling ourselves with inspiration and motivation. It renews our strength to fight for a public, free and good education.”



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**Guilherme Babo Sedlacek**, Federal Institute Teacher, Santa Catarina, STEAM TechCamp 2021

“Participating in the STEAM TechCamp 2021 has been an amazing learning experience!”



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**Flavia Costa Lima Ferreira**, Secretariat of Education of the State of Rio de Janeiro, STEAM TechCamp 2021

“At a time when education is facing many challenges, it is important to strengthen ourselves as educators because only education transforms.”



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**Christiane Borges Santos**, Federal Institute Teacher, Goiás, STEAM TechCamp 2021

“Both the workshop experience and the evaluation were very interesting, and I hope we can have more opportunities like these.”



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**Alaíde Hellen Bezerra Silva**, Student, Regeneron ISEF 2021 Participant

“To be able to participate in ISEF was an incredible experience and a dream come true. I would like to thank you very much for the support we received because I got Covid just before our preparatory phase, and if we didn’t have your support, our participation would have been very difficult.”



**Vinicius Agostini Machado**, Teacher, Regeneron ISEF 2021 Participant

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“TechCamp is an initiative that updates the opportunities of getting into contact with technologies and awakens student protagonism, in addition to favoring the mediation of the teaching and learning process.”



**Pedro Ferreira dos Santos Júnior**, State School Teacher, STEAM TechCamp 2022

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“Just seeing the interest of the evaluators in my project was very gratifying for me. The experience was totally enriching. Being able to express the sparkle I have in my eyes in a totally different language was wonderful. Just being able to keep that memory for the rest of my life is priceless. All that happened is also reflecting in my school life. At my school, we are already discussing how to disclose our science projects, encourage others to make their own projects, and take them to science fairs across the country. My schoolmates are very excited about the possibility of being able to do it too, since I did. It’s great to be able to feed these dreams.”



**Rafaela Curcio**, Student, Regeneron ISEF 2021 Participant

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“The STEAM TechCamp Brasil Program was much more than a teacher training program, it was a turning point in the trajectory of my training as a teacher and as an advisor. Through the TechCamp Brasil, I lived a year full of incredible and transformative experiences that were once far from my reality. The organizing team was a key point in the success of the program, as the professionalism, dedication and attention given to the smallest details by the entire team resulted in enormous satisfaction for all those who participated in the program. I, in particular, had the wonderful opportunity to live the TechCamp Brasil experience intensely as I carried out the online program, followed the FEBRACE delegation to ISEF in Atlanta (no words can describe this experience), got involved in the STEAM subject and organized a local event in a hybrid way, the TechCamp Ceará. All of these were only possible because of the program. Finally, I greatly appreciate the opportunity to experience it, thank you very much! I have no criticisms, only gratitude. I send hugs to all of you from the STEAM TechCamp Brasil organization!”



**Rodrigo Queiros de Almeida**, Federal Institute Teacher, STEAM TechCamp 2022

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**conclusion**



# conclusion

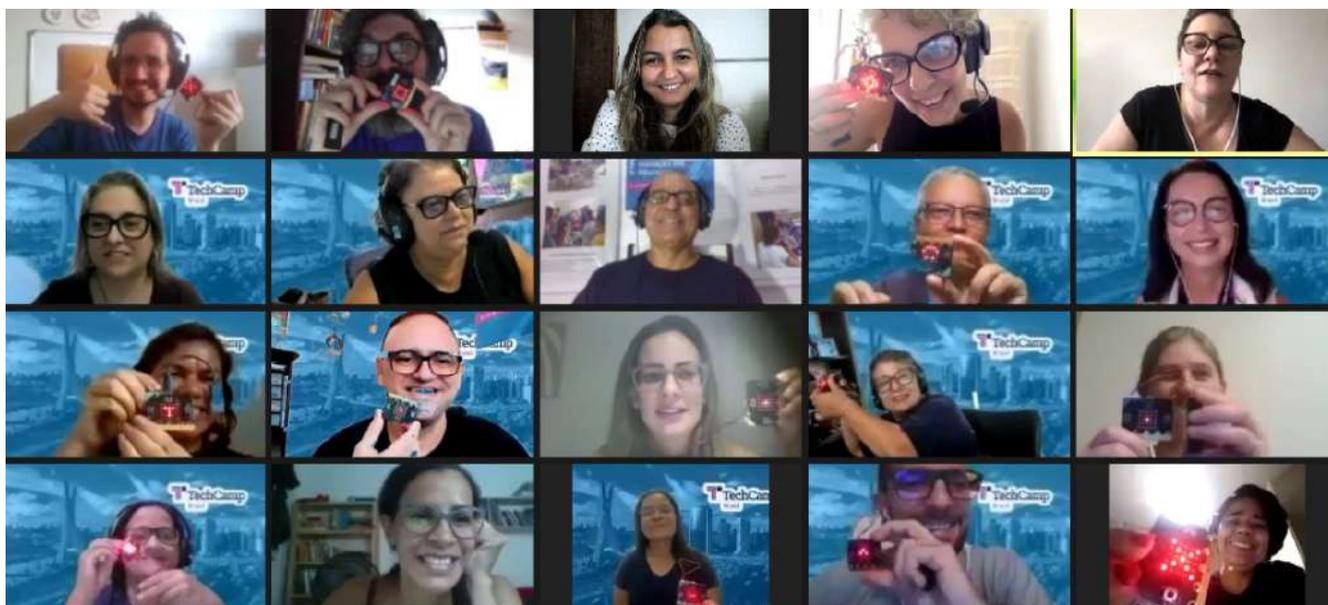
“STEAM is our connection with the future of Brazil” is how Michael McKinley, Ambassador of the United States of America, defined the program in its first edition in 2018. Now, five years later and having accumulated so many success stories, we are sure we are on the right path to ensure the future we desire.

With each edition of the STEAM TechCamp Brasil, we involve more educators in the planning and implementation of new tools and dynamic program approaches in the STEAM field for secondary-level students. Through these participants, we can expand our relationships with local professionals in each region to support and share STEAM practices via several

initiatives such as organizing local TechCamps, science fairs, educational activities, and courses and training in STEAM.

Involving a manager from the State Secretariats of Education and a teacher with experience in managing school programs and classroom practices from each Brazilian state is fundamental to keep achieving the program’s positive results. In this way, it is possible to create an environment and a network that facilitates sharing experiences and stimulates the collective construction of STEAM-related learning practices differently, considering the reality of other municipalities and states.





The activities and events proposed by the immersion week are also essential since they provide the participants from each state with the opportunity to develop their STEAM practices action plans. Notably, the Small Grants offered to selected participants stimulated the awardees to put their developed plans into practice.

The most significant challenge faced by the program in its fourth and fifth editions is related to the consequences of the Covid-19 pandemic. The large volume of work accumulated and delayed in schools and secretariats after the return to face-to-face activities made it difficult or impossible for some states to develop their actions in STEAM as initially planned.

Despite these misadventures, the organization took the necessary measures to ensure that the program was

as successful as possible, getting the most out of the potential of the teachers and managers and encouraging the realization of virtual activities whenever possible.

All 27 Brazilian Federal Units were reached in these five program editions. The participants contributed to building a network of multipliers that has reached 1,704 cities, 4,539 schools, 36,331 teachers, and 156,590 students. These results highlight the importance of continuing the action plans and activities from STEAM TechCamp Brasil. We believe that these significant results emphasize the importance of continuing with the actions and activities of the STEAM TechCamp Brasil, so we can go even further and get more and more Brazilian educators, managers and students in touch with the potential of STEAM.





**organizing committee 2021-2022**





# organizing committee 2021-2022

## U.S. Embassy & Consulates in Brazil

**Todd Miyahira**, Attaché for Education and Cultural Affairs at the U.S. Embassy in Brazil (2021)

**Gerry Kaufman**, Head of the Cultural Section at the U.S. Consulate in São Paulo (2021)

**Márcia Mizuno**, Senior Educational and Cultural Affairs Specialist at the U.S. Embassy in Brasília (2021 and 2022)

**Marcos Hirata**, Cultural Affairs Specialist - Education & Exchange at the U.S. Consulate in São Paulo (2021 and 2022)

## Polytechnic School of the University of São Paulo (POLI-USP)

**Roseli de Deus Lopes**, Associate Professor at the Electronic System Engineering Department of the Polytechnic School of the University of São Paulo and Scientific Coordinator of the STEAM TechCamp Brasil Program (2021 and 2022)

**Fábio Durand**, Audiovisual Specialist at the Electronic System Engineering Department of the Polytechnic School of the University of São Paulo (2021 and 2022)

## Technological Integrated Systems Laboratory (LSI-TEC)

**Irene Karaguilla Ficheman**, Education Technology Manager at LSI-TEC (2021 and 2022)

**Elena Saggio**, Communication Manager at LSI-TEC (2021 and 2022)

**Erich Lotto**, Webdesigner at LSI-TEC (2021 and 2022)

**Johny Ho**, Communication Analyst at LSI-TEC (2021 and 2022)

**Tatiana Nakamura**, Event Producer at LSI-TEC (2021 and 2022)

**Cássia Gabriela Salomão**, Administrative Analyst at LSI-TEC (2021 and 2022)

**Giovana Berti**, Graphic Designer (2021 and 2022)

**Lucas Ribeiro Mata**, Digital Media (2021 and 2022)

**Rodrigo Suigh**, Virtual Rooms Technical Support - Zoom (2021 and 2022)

**Marcelo Fraga**, Virtual Rooms Technical Support - Zoom (2021 and 2022)

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**Irene Karaguilla Ficheman (LSI-TEC)**

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**Robert Ryan Geyer**

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**Gabriela Masini**

**Carolina Jacomim**

Photos:

**STEAM TechCamp Brasil Program's Collection**

**Participants' Collection**

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Initiative and Achievement:

**United States Embassy and Consulates in Brazil**

Production:

**Technological Integrated Systems Laboratory (LSI-TEC)**

Support:

**Polytechnic School of the University of São Paulo (POLI-USP)**

**National Council of Secretaries of Education (Consed)**

**3M Institute**

