Caluã de Lacerda Pataca

+1 585 710-1334 · Rochester, NY · calua.pataca@gmail.com · caluapataca.com

Ph.D. student at the Rochester Institute of Technology (RIT) researching how to make captions more expressive for d/Deaf and Hard-of-Hearing viewers. I combine a background in design and computing with research in Human-Computer Interaction to explore new caption formats that include information about a speaker's emotions and moods. I am a Fulbright scholar with work published at top conferences in the field.

EDUCATION

Rochester Institute of Technology, Rochester, New York
Ph.D. in Computing and Information Sciences 08/2021 – 07/2026 (EXPECTED)
Advisor: Dr. Matt Huenerfauth Co-advisor: Dr. Roshan Peiris

University of Campinas, Campinas, São Paulo, Brazil
MSc in Electrical and Computer Engineering 08/2018 – 05/2021
Advisor: Dr. Paula Dornhofer Paro Costa
Thesis: Speech-Modulated Typography
BA and Licentiate degree in Visual Arts 02/2002 – 07/2007
Certificate program in programming (technical high school) 02/1999 – 12/2002

JOURNAL ARTICLES

[J1] **Caluã de Lacerda Pataca**, and Paula Dornhofer Paro Costa (2023) Hidden bawls, whispers, and yelps: can text convey the sound of speech, beyond words? *IEEE Transactions on Affective Computing.*

PEER-REVIEWED CONFERENCE PAPERS

[C6] **Caluã de Lacerda Pataca**, Saad Hassan, Nathan Tinker, Roshan Peiris, and Matt Huenerfauth. Caption Royale: Exploring the Design Space of Affective Captions from the Perspective of Deaf and Hard-of-Hearing Individuals. In *Proceedings of the 2024 ACM CHI Conference on Human Factors in Computing Systems.* [CHI'24] [Accept rate: 26.3%]

[C5] Saad Hassan, **Caluã de Lacerda Pataca**, Laleh Nourian, Gareth Tigwell, Briana Davis, and Will Wagman, Designing and Evaluating an Advanced Dance Video Comprehension Tool with In-situ Move Identification Capabilities. In *Proceedings of the 2024 ACM CHI Conference on Human Factors in Computing Systems.* [CHI'24] [Accept rate: 26.3%]

[C4] **Caluã de Lacerda Pataca**, Matthew Watkins, Roshan Peiris, Sooyeon Lee, and Matt Huenerfauth. (2023) Visualization of Speech Prosody and Emotion in Captions: Accessibility for Deaf and Hard-of-Hearing Users. In *Proceedings of the 2023 ACM CHI Conference on Human Factors in Computing Systems.* [CHI'23] [Accept rate: 27.6%]

[C3] Saad Hassan, Akhter Al Amin, **Caluã de Lacerda Pataca**, Diego Navarro, Alexis Gordon, Sooyeon Lee, and Matt Huenerfauth. (2022) Support in the Moment: Benefits and use of video-span selection and search for sign-language video comprehension among ASL learners. In *Proceedings of the 24th International ACM SIGACCESS Conference on Computers and Accessibility.* [ASSETS'22] [Accept rate: 26.5%] [Best paper nomination]

[C2] **Caluã de Lacerda Pataca**, and Paula Dornhofer Paro Costa (2020). Speech modulated typography: towards an affective representation model. In *Proceedings of the 25th International Conference on Intelligent User Interfaces.* [IUI'20] [Accept rate: 16.7%]

[C1] **Caluã de Lacerda Pataca**, and Paula Dornhofer Paro Costa (2019). Tipografia modulada pela fala: avaliação de um algoritmo de geração de prosódia visual em textos. In *Blucher Design Proceedings. 9° Congresso Internacional de Design da Informação.*

POSTER PRESENTATIONS

[P2] **Caluã de Lacerda Pataca**, Matthew Watkins, Sooyeon Lee, and Matt Huenerfauth. Developing a captioning style that can help Deaf and Hard-of-hearing individuals identify a speaker's emotions, moods, and emphasis. AI@RIT summit, October 2022.

[P1] **Caluã de Lacerda Pataca**, and Paula Dornhofer Paro Costa. Tipografia modulada pela fala. In: *Proceedings of the XII EADCA Encontro de Alunos e Docentes do DCA*, October 2019.

PROFESSIONAL EXPERIENCE

Graduate Research Assistant
Center for Accessibility and Inclusion Research (CAIR) 08/2021 – Present

- With a focus on the perspectives of Deaf and Hard-of-Hearing users, I investigate various forms of captions, including affective, prosodic, and haptic, and how they can be used to enhance the expressive quality of captioned content.
- Plan, execute, and evaluate research investigations utilizing diverse methodologies such as surveys, interviews, and usability studies.
- Design and implement prototypes for research projects, either fully interactive systems (e.g., [C3]), or pre-rendered visualizations of acoustic and ML-based data (e.g., [C1, C4]).
- Author technical papers showcasing research findings at conferences and in journals relevant to human-computer interaction and accessibility.
- Supervisory experience in mentoring and coordinating research assistants, interns, and co-op students, overseeing their work on various projects, including ML-based speech analysis, real-time conferencing applications, and caption design systems.

Founder and Head of Design at Preface 10/2006 – 08/2021

- Designed and coordinated UX, UI, and front-ends in mid- to large-sized projects, while also handling branding-related tasks and other design-related work.
- For the work at Preface, my team and I won multiple design awards and were responsible for the digital platforms of projects of national importance in Brazil, such as the National Olympiad in Brazilian History, in which around 100,000 participants participate each year.

PATENTS

- Paula Dornhofer Paro Costa, and **Caluã de Lacerda Pataca.** Método para composição de closed-captions com parâmetros tipográficos representando visualmente qualidades acústicas da fala (Pending. Process BR-10/2021-016125-6).
- Ricardo Alexandre Da Silva Shimabukuro Victorio, Gustavo Vilela Vargas, Fernando Augusto Chufi, Thiago Yoshihiro Ito Takahashi, Fábio San Juan, **Caluã de Lacerda Pataca**, José Luis Ponciano Bomfim, Adriana Ramos, Guilherme de Oliveira Feliciano, and Maria Cristina Marcucci Ribeiro (2012). Traceability system applied to farm production activities, industrialization and commercialization of bee products. U.S. Patent Application No. 12/596,612.

SCHOLARSHIPS & AWARDS

- 2021–2026 Fulbright/Capes Full Doctorate Program · *The highly competitive Fulbright Scholarship program supports doctoral study at top U.S. institutions.*
- Best paper nomination at ASSETS'22 · *Top 6% of conference papers.*
- 2022 CRA-WP Grad Cohort Workshop for IDEALS · *This competitive program for students underrepresented in the computing field provides mentoring for graduate students across North America.*
- SIGCHI Student Travel Grant (SSTG) to present at the 2020 International Conference on Intelligent User Interfaces at Cagliari, Italy · *Competitive program providing support to students attending SIGCHI-sponsored or co-sponsored conferences.*
- 3 bronze medals, 1 silver medal, and 2 Popular Vote Trophies in 2018, 2019, and 2020 editions of the Brasil Design Award · *The awards were presented at the prestigious annual ceremony hosted by the Association for Brazilian Design Companies (ABEDESIGN).*
- Selected project for the 13th Brazilian Graphic Design Biennial · *Prestigious juried exhibition organized by the Brazilian Association of Graphic Designers.*

INVITED TALKS & GUEST LECTURES

`09/22` Identifying emotions, moods, and emphasis through captions · Monthly meeting of the Readability Consortium

`10/22` Introduction to experimental design · HCIN-600 Research Methods, RIT

`03/23` Visualization of Speech Prosody and Emotion in Captions: Accessibility for Deaf and Hard-of-Hearing Users · ISTE-266 Design for Accessibility, RIT

`10/23` Captions beyond words: Paralinguistic accessibility for d/Deaf and Hard-of-Hearing individuals · Communication Sciences and Disorders Department, University of Houston

`11/23` Enhancing Affective Captions with Haptic Feedback · Haptics for Inclusion Symposion, University of Borås, Sweden

`03/24` Captions beyond words: Paralinguistic accessibility for Deaf and Hard-of-Hearing individuals · Department of Access Services, RIT

PROFESSIONAL SERVICE

Late Breaking Work Reviewer
ACM CHI Conference on Human Factors in Computing Systems (CHI'23) 2023

Technical Paper Reviewer
ACM CHI Conference on Human Factors in Computing Systems (CHI '23 & '24) 2022 – Present

UNIVERSITY SERVICE

Communications Chair
CAIR, Rochester Institute of Technology 08/2022 – Present

ADDITIONAL SKILLS

Technical Skills
Python, Javascript, Front-end development (HTML/CSS/Js), Vue.js, jsPsych.

HCI Research Methodologies
Interviews, Usability testing, Surveys, Prototype creation (HTML/CSS plus vanilla Javascript or Vue.js for the front-end, with Google Firebase or jsPsych with DataPipe+OSF for the back-end).

Design Skills
Generative design frameworks and tools (p5js, Processing, DrawBot, Nodebox, and Paper.js), Adobe Creative Suite, Figma.

Languages
English (Fluent), Portuguese (Native), and French (Conversational).