

# Jessica Imlau Dagostini

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🏠 Personal Page   in LinkedIn   🐙 GitHub

## AREAS OF INTEREST

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High-Performance Computing | Scientific Computing | GPGPU Programming | Graph Algorithms  
| Optimization and Load Balancing | Programming Languages

## EDUCATION

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Sep,2022 – Present

### Ph.D. Student in Computer Science

University of California Santa Cruz (UCSC), United States

Co-Advisor: Prof. Dr. Scott Beamer

Co-Advisor: Prof. Dr. Tyler Sorensen

Mar,2020 – Mar,2022

### M.Sc. in Computer Science (GPA: A)

Federal University of Rio Grande do Sul (UFRGS), Brazil

*"Performance Improvements Applied in an Electromagnetic Inversion Application Focused on Homogeneous and Heterogeneous Computational Environments"*

Advisor: Prof. Dr. Lucas Mello Schnorr

Feb,2015 – Dec,2019

### B.Sc. in Computer Science (Summa Cum Laude – 9.39 / 10)

Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil

*"Evaluating the Container's Applicability in a Distributed System of Code Judgement"*

*(Avaliação da Aplicabilidade de Containers em um Sistema Distribuído de Julgamento de Códigos.)*

Advisor: Prof. Ms. Neilor Avelino Tonin

Co-advisor: Dr. Jean Luca Bez

## PROFESSIONAL EXPERIENCE

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Sept,2022 – Ongoing

### Graduate Student Researcher

University of California, Santa Cruz, United States

Co-advisor: Prof. Dr. Scott Beamer

Co-advisor: Prof. Dr. Tyler Sorensen

- Understand and finding optimizations for a genome application focused on DNA mapping for human pangenomic DNA references
- Developing a proxy application based on this pangenome mapping tool to allow the exploration of software improvements

Jan, 2023 – Ongoing

### Teaching Assistant

University of California, Santa Cruz, United States

Courses:

- CSE113 - Parallel and Concurrent Programming (Winter 2023 and Winter 2024)

Sept,2023 – Dec,2023

### PhD Intern – High Performance Computing

Pacific Northwest National Laboratory

Advisor: Dr. Joseph B Manzano

- Performance and characterization of a DNA mapping application that uses pangenomes as references and a graph structure called GBWT (Graph Burrows-Wheeler Transform) to index DNA readings
- Started working towards developing a proxy application based on this pangenome mapping tool

Jan,2021 – Jul, 2022

### Principal System Architect

beecrowd, Brazil

- Responsible for the development and maintenance of the programming language support and setup of the beecrowd judging system;
- Organize and supervise team's activities.

Mar,2020 – Mar, 2022

**Graduate Student Researcher**

Federal University of Rio Grande do Sul (UFRGS), Brazil  
 "Computational Optimization of Data Inversion Codes"  
 (Otimização Computacional de Códigos de Inversão de Dados)  
 Advisor: Prof. Dr. Lucas Mello Schnorr

- This project aims to investigate and implement computational techniques that improve the execution and quality of results of Data Inversion codes;
- Evaluated, proposed and applied algorithms to improve the load balancing and scalability of a data inversion application of survey oil and gas in homogeneous and heterogeneous systems.

May,2019 – Sep,2019

**Adjunct Faculty**

National Service for Commercial Education - RS, SENAC/RS, Brasil.

- Taught robotics to K-12 students in a project complementary to school;
- Teacher in two components of the Fundamentals of Informatics course (Compact Internet and Compact PowerPoint).

Jan,2019 – Mar,2019

**Intern Researcher (Summer Program)**

Brazilian Center for Research in Energy and Materials (CNPq), Brazil  
 Brazilian Synchrotron Light Laboratory (LNLS), Brasil  
 "GPU Code Implementation to Phase Recovery on Fraunhofer Region"  
 (Implementação em GPU para a Recuperação da Fase na Região de Fraunhofer)  
 Advisor: Dr. Eduardo Xavier Miqueles

- Summer internship project consisted of the development of a specific tool for the restoration of projective images obtained in the Fraunhofer region;
- Main developer of an application in CUDA to be incorporated into the pipeline of the automatic processing of the detectors from the Sirius synchrotron light source;
- Discovered some bugs at cuFFT library that were reported to NVIDIA developers.

Aug,2018 – Jul,2019

**Undergraduate Student Extensionist**

Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil  
 "Insertion of High School Students from Erechim on Brazilian Olympiads in Informatics"  
 (A Inserção de Alunos do Ensino Médio de Erechim na Olimpíada Brasileira de Informática)  
 Advisor: Prof. Ms. Neilor Avelino Tonin

- Project to teach algorithms and programming languages to High School students
- Taught programming to 45 students that enrolled in the Brazilian Olympiads in Informatics (OBI)

Aug,2015 – Jul,2018

**Undergraduate Research Assistant**

Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil

- "A Study About Distributed Systems to be Applied on URI Online Judge Portal"  
 (Um Estudo Sobre Sistemas Distribuídos para Aplicação no Portal URI Online Judge)  
 Advisor: Prof. Ms. Neilor Avelino Tonin
  - Distributed the front-end servers from URI Online Judge;
  - Studied and applied tests to verify which system distribution will be the best option for the environment
- "Developing a Customized Online Forum to URI Online Judge"  
 (Criação de um Fórum Customizado para o Portal URI Online Judge)  
 Advisor: Prof. Ms. Neilor Avelino Tonin
  - Rebuilt the online forum from the URI Online Judge (now beecrowd) platform, applying some concepts related to Human-Computer Interaction, developed using CakePHP framework;
  - The new version was deployed in April, 2017, now being used by 300k users, with more than 8800 posts (<https://www.beecrowd.com.br/judge/en/forum>).

Apr, 2012 – Aug, 2014

**Junior Student Research**

Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil

Escola Estadual Normal José Bonifácio (High School), Brazil

*"Discussion and Deepening of Concepts Regarding the Study of Mathematical Functions on High School"**(Discussão e Aprofundamento de Conceitos a Respeito do Estudo de Funções do Ensino Médio)*

Advisor: Prof. Ms. Clemerson Alberi Pedrosa

- Investigated, discuss, and deepen mathematical concepts related to the study of functions and contribute to the approximation of scientific-theoretical knowledge didactic-operational knowledge in Exact Sciences;
- Developed a diversity of studies from applied mathematics and created a collection of problems modeled from real-world problems.

**AWARDS**

2023

**2<sup>o</sup> Place - ISC Virtual Student Cluster Competition**

Team Not-So-Slow-Slugs - UCSC. Awarded by ISC High Performance 2023 Conference.

2021

**Students@SC'21 Best Lightning Talk**

Awarded by Students@SC Program from Supercomputing'21 Conference

2021

**BRASA Pré Pós-Graduação Mentee**

Selected mentee for the Brazilian Student Association (BRASA) PRÉ Pós-Graduação (Graduate Program) for Ph.D Program.

2020

**URI Erechim Best Student Award**

SUMMA CUM LAUDE (9.39 / 10.0)

Awarded by Universidade Regional Integrada do Alto Uruguai e das Missões (URI)

2020

**SBC Highlight Student Award**

SUMMA CUM LAUDE (9.39 / 10.0)

Awarded by Brazilian Computer Society (SBC)

2016

**2<sup>o</sup> Place - Tecnomate Contest 2016, Categoria "Libres"**

Awarded by Departamento de Ingeniería en Sistemas de Información, UTN Santa Fé (Argentina).

2010

**Honorable Mention on 6th Brazilian Math Olympiads of Public Schools (OBMEP)**

Awarded by Conselho Nacional de Pesquisa (CNPq), Brasil.

**GRANTS & FELLOWSHIPS**

Apr, 2024

**CRA-WP Grad Cohort for Women**

Academic funding to participate in the annual Grad Cohort for Women on Minneapolis, MN.

Aug, 2023

**HDF5 Group Meeting Student Travel Grant**

Academic funding to participate in the annual meeting of the HDF5 group on Columbus, OH.

Apr, 2023 – Jun, 2023

**UCSC Dean's Fellowship**

Academic funding given to a small number of outstanding new PhD admitted students at UCSC for tuition coverage.

Mar, 2020 – Mar, 2022

**Master Scholarship**

Financial scholarship provided by Petroleo Brasileiro, to work in the research project "Otimização Computacional de Códigos de Inversão de Dados" (Computational Optimization of Data Inversion Codes)

Fev, 2015 – Dez, 2019

**University for All Program (ProUni)**

Financial and merit-based full scholarship provided by Brazilian Federal Government to cover university tuition (selected as 1st place)

**PUBLICATIONS**

## JOURNAL PUBLICATIONS

- **Dagostini, J.**; Bez, J. L.; Tonin, N. A.; Rodegheri, P. R. (2017) **Um novo ambiente de discussões para o URI Online Judge** *Perspectiva - Erechim*, v. 41, p. 65-74, 2017

## FULL PAPERS PUBLISHED IN CONFERENCES

- **Dagostini, J.**; H. C. P. da Silva, V. G. Pinto, R. M. Velho, E. S. L. Gastal and L. M. Schnorr. (2021) **Improving Workload Balance of a Marine CSEM Inversion Application.** In: *2021 IEEE International Parallel and Distributed Processing Symposium Workshops (IPDPSW)*, 2021, pp. 704-713, <https://doi.org/10.1109/IPDPSW52791.2021.00107>.
- **Dagostini, J.**; Lima, M. V. de M.; Bez, J. L.; Tonin, N. A. (2018) **URI Online Judge Blocks: Construindo Soluções em uma Plataforma Online de Programação.** In: *XXIX Simpósio Brasileiro de Informática na Educação (Brazilian Symposium on Computers in Education)*, Fortaleza, 2018. v. 1. p. 168-177. <http://dx.doi.org/10.5753/cbie.sbie.2018.168>
- **Dagostini, J.**; Lima, M. V. de M.; Tonin, N. A. (2018) **Multilayer Perceptron para Classificação de Sentimento em Textos utilizando a biblioteca TensorFlow.** In: *X Simpósio De Tecnologia Da Informação Da Região Norte e Nordeste do Rio Grande do Sul*, 2018, Erechim, RS.
- **Dagostini, J.**; Tonin, N. A. (2016) **URI Online Judge Fórum: Uma Plataforma para Compartilhamento de Conhecimento.** In: *II CONIGTI - Congresso Internacional de Gestão, Tecnologia e Inovação*, Erechim, RS: EdIFAPES, 2016. v. 1.

## SHORT PAPERS PUBLISHED IN CONFERENCES

- **Dagostini, J.**; Beamer, S., & Sorensen, T., & Manzano, J., & Marques, A. (2024). **Developing a Proxy Application Based on a Parallel Pangenome Mapping Tool.** In: *The 1st Workshop on Emerging Computer Systems Challenges and Applications in Biomedicine (BioSys)*. San Diego, CA, USA. (Accepted)
- **Dagostini, J.**; Pinto, V., & Schnorr, L. (2021). **Aplicação de Método Guloso para Balanceamento de Carga em uma Aplicação de Exploração Eletromagnética.** In: *Anais da XXI Escola Regional de Alto Desempenho da Região Sul*, (pp. 87-88). Porto Alegre: SBC. <https://doi.org/10.5753/erads.2021.14782>
- **Dagostini, J.**; Lima, M. V. de M.; Bucior, L; Bez, J. L.; Tonin, N. A. (2017) **Incentivando a Aprendizagem de Algoritmos Através do URI Online Judge Forum 2.0** In: *XXVIII Simpósio Brasileiro de Informática na Educação (Brazilian Symposium on Computers in Education)*, Recife, 2017. v. 1. p. 1781. <http://dx.doi.org/10.5753/cbie.sbie.2017.1781>

**SKILLS****ENVIRONMENTS**

- Working proficiency: Linux/Unix | nano | bash | git | Docker and LXC containers | LaTeX;
- Basic proficiency: spack | slurm | vi.

**PROGRAMMING LANGUAGES**

- Working proficiency: C | C++ | Python | PHP | HTML/CSS;
- Basic proficiency: Java | JavaScript | Ruby | R.

**APIs AND FRAMEWORKS**

- Working proficiency: CUDA | OpenMP | CakePHP | Score-P;
- Basic proficiency: MPI | POSIX Threads | OpenACC.

**GENERAL SKILLS**

- Abilities with leadership and teamwork;
- Experience with teaching algorithms to new programmers;
- Knowledge of teaching didactics (High School with disciplines for teaching degree).

## PRESENTATIONS AND INVITED TALKS

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### INVITED TALKS

1. **Dagostini, J.**; Solórzano, A. L.; Girelli, V.; Carmin, M. (2022) **Special Sessions - Women in High Performance Computing.** (*WHPC Affiliate Brasil - Região Sul. XXII Escola Regional de Alto Desempenho, Parana, Brasil*)
2. **Dagostini, J.**; Gayler, R.; Beste E. de; ratkin, M.; Merritt, C.; Gonsiorowski, E.; Belcher, K.; Chen, D. (2021) **Addressing Challenges in HPC Careers.** *Students@SC Student Programming, Supercomputing 21 Conference, St. Louis, United States*
3. **Dagostini, J.**; Baptista, V.; Zhan, Y.; Leiva, F. H.; Gyawali, S.; Johnston, B.; Filingier, W. (2021) **Presentation and Communication Skills.** *Students@SC Student Programming, Supercomputing 21 Conference, St. Louis, USA*
4. **Dagostini, J.**; Solórzano, A. L.; Girelli, V. (2021) **Por que ainda precisamos falar sobre mulheres em HPC?.** *English title: Why do we still have to talk about women in HPC? (WHPC Affiliate Brasil - Região Sul) WSCAD Conference, Minas Gerais, Brasil*
5. **Dagostini, J.**; Solórzano, A. L.; Girelli, V. (2021) **Latin American Women on HPC: WHPC Affiliate Brasil Região Sul.** *Latin America High Performance Computing Conference (CARLA 2021), Guadalajara, Mexico*
6. **Dagostini, J.**; Solórzano, A. L.; Girelli, V. (2021) **Special Session - Women in High Performance Computing.** (*WHPC Affiliate Brasil - Região Sul*) *XXI Escola Regional de Alto Desempenho, Santa Catarina, Brasil*
7. **Dagostini, J.**; Lima, M. V. de M.; Tonin, N. A. (2017) **Enseñar a programar jugando: URI Judge Online.** *WTIC, Resistencia, Argentina*
8. **Dagostini, J.**; Bez, J.L.; Tonin, N. A. (2016) **Portal URI Online Judge - Internacionalização. 2016.** *Tecnomate, Santa Fé, Argentina.*

## COMMUNITY SERVICES

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### COMMITTEE

- 2023 **ACM/IEEE SC'23 Supercomputing Conference, Denver, CO (USA)**  
Infrastructure - Wayfinding Co-Chair  
Artifact Description / Article Evaluation (AD/AE) Appendix Reviewer  
Lead Student Volunteers Reviewer
- 2023 **Women in HPC SC'23 Workshop**  
Submissions Co-Chair
- 2023 **International Conference on Parallel Computing**  
Reproducibility Committee
- 2022 **Women in HPC SC'22 Workshop**  
Submissions Co-Chair
- 2022 **29th IEEE Hot Interconnects Symposium**  
Web Chair
- 2019 **X Simpósio de Tecnologia da Informação da Região Norte e Noroeste do Rio Grande do Sul XXIII Semana Acadêmica do Curso de Ciência da Computação da URI Erechim.**  
Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil  
Member of the Organizer Team
- 2019 **IX Simpósio de Tecnologia da Informação da Região Norte e Noroeste do Rio Grande do Sul XXII Semana Acadêmica do Curso de Ciência da Computação da URI Erechim.**  
Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil  
Member of the Organizer Team

2019 **III Engenharia em 24 Horas: o desafio.**  
 Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil  
 Member of the Organizer Team

EXTERNAL REVIEWER

2022 – Present **Parallel Computing Journal**

## TUTORIALS AND SHORT TERM COURSES

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May,2022 **Orquestrando Containers com Docker e LXC**  
 Cursos de Outono 2022  
 Short Term Course

Apr,2021 **Are you Root? Experimentos Reprodutível em Espaço de Usuário**  
 XXI Escola Regional de Alto Desempenho da Região Sul  
 Short Term Course

Oct,2020 **Introdução a Programação Paralela com OpenMP**  
 I Semana Acadêmica Integrada dos Cursos de Ciência da Computação da URI  
 Short Term Course

## VOLUNTEER EXPERIENCE

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Apr,2024 – Present **SC'24 Selected Lead Student Volunteer**  
 ACM/IEEE SC'24 Supercomputing Conference, Atlanta (USA)  
 Principal Activities:
 

- Students@SC Networking
- Reproducibility Member

Nov,2022 – Nov,2023 **SC'23 Wayfinding Co-Chair**  
 ACM/IEEE SC'23 Supercomputing Conference, Denver (USA)  
 Principal Activities:
 

- Co-chair of Wayfinding Committee, responsible for the general information to attendees in the conference (info booth).
- Reviewer of Artifact Description / Article Evaluation (AD/AE) Appendix and the Lead Student Volunteers submissions.

May,2022 – Nov, 2023 **Women in HPC SC Workshop Submissions Co-Chair**  
 Women in HPC SC'22 & SC'23 Workshop  
 ACM/IEEE SC'22 Supercomputing Conference, Dallas (USA)  
 ACM/IEEE SC'23 Supercomputing Conference, Denver (USA)  
 Principal Activities:
 

- Co-chair of Lightning Talk Submissions for the Women in HPC Workshop

Jan,2021 – Present **Women in HPC Affiliate Brasil - Região Sul**  
 Co-Founder of the Women in HPC Affiliate Brasil - Região Sul.  
 First representation of WHPC Global in Latin America.

Jan,2022 – May,2023 **Hot Interconnects 2022 Web Chair**  
 Responsible for the web development and design of the Hot Interconnects 2022 web page.

Jan,2022 – Dec,2022 **BRASA PRÉ Pós-Graduação Mentor**  
 Mentor of a Brazilian student for the application process for graduate schools in USA.

- Mar,2022 – Nov, 2022      **Selected SCALE Student Volunteer**  
Lead Student Volunteer  
ACM/IEEE SC'22 Supercomputing Conference, Dallas (USA)  
Principal Activities:  
    • Lead Volunteer at Infrastructure Committee (Wayfinding)
- Apr,2022                      **Volunteer Staff**  
2022 International Collegiate Programming Contest  
South America/Brazil Finals  
Principal Activities:  
    • Help with general organization and coordination in the whole final contest event.
- Mar,2021 – Nov, 2021      **Selected SCALE Student Volunteer**  
Student Committee Apprenticeship and Leadership Experience  
ACM/IEEE SC'21 Supercomputing Conference, St. Louis (USA)  
Principal Activities:  
    • Student Volunteer at Communication Committee  
    • Updates on social media from Students@SC Program
- Nov,2020                      **Selected Regular Student Volunteer**  
ACM/IEEE SC'20 Supercomputing Conference, Atlanta (USA)
- May,2015 – Aug,2017      **Volunteer Member**  
Rotaract Club Erechim Paiol Grande - Rotaract Club recognized by the Rotary International