

# 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 (CNPEM), 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.beeccrowd.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 Pedroso

- 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

**2º 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

**2º 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**

Aug, 2024

**2024 ACM SIGHPC Computational and Data Science Fellowship**

Highly competitive fellowship sponsored by ACM SIGHPC focused on underrepresented groups working with High Performance Computing. 2024 cohort composed only by two fellows. It will provide extra academic funding for 4 years.

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; F 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

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|------|---|
| 2024 | <b>Women in HPC SC'24 Workshop</b><br>Workshop Co-Chair   |
| 2023 | <b>ACM/IEEE SC'23 Supercomputing Conference, Denver, CO (USA)</b><br>Infrastructure - Wayfinding Co-Chair<br>Artifact Description / Article Evaluation (AD/AE) Appendix Reviewer<br>Lead Student Volunteers Reviewer  |
| 2023 | <b>Women in HPC SC'23 Workshop</b><br>Submissions Co-Chair  |
| 2023 | <b>International Conference on Parallel Computing</b><br>Reproducibility Committee  |
| 2022 | <b>Women in HPC SC'22 Workshop</b><br>Submissions Co-Chair  |
| 2022 | <b>29th IEEE Hot Interconnects Symposium</b><br>Web Chair   |
| 2019 | <b>X Simpósio de Tecnologia da Informação da Região Norte e Noroeste do Rio Grande do Sul</b><br><b>XXIII Semana Acadêmica do Curso de Ciência da Computação da URI Erechim.</b><br>Universidade Regional Integrada do Alto Uruguai e das Missões - URI Erechim, Brazil<br>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 Lead Student Volunteer
- Reproducibility Member
- Teach the Teachers Lead Student Volunteer

May, 2024 – Present **Women in HPC SC Workshop Co-Chair**  
Women in HPC SC'24 Workshop  
ACM/IEEE SC'24 Supercomputing Conference, Atlanta (USA)  
Principal Activities:  

- Co-chair of the Women in HPC Workshop

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, 2024 **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	<b>Women in HPC Affiliate Brasil - Região Sul</b> Co-Founder of the Women in HPC Affiliate Brasil - Região Sul. First representation of WHPC Global in Latin America.
Jan,2022 – May,2023	<b>Hot Interconnects 2022 Web Chair</b> Responsible for the web development and design of the Hot Interconnects 2022 web page.
Jan,2022 – Dec,2022	<b>BRASA PRÉ Pós-Graduação Mentor</b> Mentor of a Brazilian student for the application process for graduate schools in USA.
Mar,2022 – Nov, 2022	<b>Selected SCALE Student Volunteer</b> Lead Student Volunteer ACM/IEEE SC'22 Supercomputing Conference, Dallas (USA) Principal Activities: <ul style="list-style-type: none"><li>• Lead Volunteer at Infrastructure Committee (Wayfinding)</li></ul>
Apr,2022	<b>Volunteer Staff</b> 2022 International Collegiate Programming Contest South America/Brazil Finals Principal Activities: <ul style="list-style-type: none"><li>• Help with general organization and coordination in the whole final contest event.</li></ul>
Mar,2021 – Nov, 2021	<b>Selected SCALE Student Volunteer</b> Student Committee Apprenticeship and Leadership Experience ACM/IEEE SC'21 Supercomputing Conference, St. Louis (USA) Principal Activities: <ul style="list-style-type: none"><li>• Student Volunteer at Communication Committee</li><li>• Updates on social media from Students@SC Program</li></ul>
Nov,2020	<b>Selected Regular Student Volunteer</b> ACM/IEEE SC'20 Supercomputing Conference, Atlanta (USA)
May,2015 – Aug,2017	<b>Volunteer Member</b> Rotaract Club Erechim Paiol Grande - Rotaract Club recognized by the Rotary International