

Warrick Macmillan

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EDUCATION

<i>Master's Degree</i> , Language Technology Göteborg Universitet, Göteborg , Sweden Thesis Title : On the Grammar of Proof Advisor : Aarne Ranta	October 2021
<i>Bachelor of Science</i> , Applied Mathematics Emory University, Atlanta, Georgia	May 2013
<i>Bachelor of Arts</i> , Physics Emory University, Atlanta, Georgia	May 2013
<i>Minor</i> , Chemistry Emory University, Atlanta, Georgia	May 2013

PROFESSIONAL EXPERIENCE

<i>Invidi Technologies</i> Stockholm, Sweden Software Engineer	May 2022 – January 2024
<ul style="list-style-type: none">• Developed reporting and analytics software, enhancing customer insights on advertising campaigns.• Integrated internal APIs for seamless microservices communication, utilizing Java, JavaScript, and Python.• Utilized AWS (S3, Athena), GCP (log management), and Kubernetes for robust infrastructure management.• Conducted comprehensive testing for both frontend and backend components, ensuring product reliability and efficiency.	
<i>Heriot-Watt University</i> Edinburgh , Scotland (Remote) Project Intern	July 2021 – April 2022
<ul style="list-style-type: none">• Proposed and designed a pipeline for verified pipeline using Large Language Models and functional programming tools for voice assistants for autonomous vehicles• Designed a Grammatical Framework (GF) parser and compiled via Haskell semantics into temporal logic• Produced an verified linear temporal logic library in Agda	
<i>Credmark</i> Austin, Texas (Remote) Software Consultant	May 2021 – July 2021
<ul style="list-style-type: none">• Design and implement mathematical models in Python for blockchain futures prices	
<i>Göteborg Universitet</i> Göteborg , Sweden	January 2020 – September 2021

Master's Student Researcher

- Used GF to write a parser for translation between formal and natural language proofs
- Built custom Agda library for chapter 2 of the Homotopy Type Theory Book
- Course assistant

Comarch, Inc.

November 2015 – February 2016

New York, NY

Front-End Web Developer

- Worked on the team making a gamification widget for JetBlue's website.
- Advised the CEO.

San Francisco Veterans Affairs

February 2014 – July 2015

San Francisco , CA

Research Associate

- Designed and tested Finite Element Models for heart tissue and Mitraclip surgical device.
- Developed quadrahedral meshes of heart tissue using TrueGrid topology meshing software.

Burning Man

February 2014 – September 2014

Reno , NV

Lead Artist for Library of Babel

- Oversaw finances, operations, marketing on large scale art installation for Burning Man.
- Managed over 100 volunteers on a myriad of fabrication, design, and construction tasks.
- Designed and built 45 foot (15 meter) functional space with hundreds of handmade books.

Universidade Estadual de Campinas

June 2011 – September 2011

Campinas , Brazil

Research Associate

- Studied photoelectric properties of organic solar cell materials.
- Operated experiments using Leica Confocal Microscope.
- Processed and analyzed microscope data to understand.

PUBLICATIONS

- Pantoja JL, Zhang Z, Tartibi M, Sun K, Macmillan W, Guccione JM, Ge L, Ratcliffe MB. Residual Stress Impairs Pump Function After Surgical Ventricular Remodeling: A Finite Element Analysis. *Ann Thorac Surg.* 2015 Dec; 100(6):2198-205.

TALKS

- On the Grammar of Proof. Initial Types Club Seminar. September 9, 2021.
- Formal Languages in Grammatical Framework. Grammatical Framework Summer School. August 4, 2021.
- Modeling Programming Languages in Grammatical Framework. Initial Types Club Seminar. May 27, 2021.
- Introduction to Monoidal Preorders. Initial Types Club Seminar. March 25, 2021.
- Type Theory and Natural Language Semantics. Initial Types Club Seminar. December 17, 2020.

CONFERENCE PROCEEDINGS

- Listenmaa I, Strecker M, Macmillan W. Natural Language Generation and Processing for the Legal Domain. Logic and Algorithms in Computational Linguistics 2021 (LACompLing2021). December 17, 2021.
- Macmillan W, Gulati S, Guccione JM, Ge L, Ratcliffe MB. The Effect of MitraClip on Mitral Leaflet Stress Using Two Finite Element Methods. Abstract ID: 2357. Presented at the Biomedical Engineering Society Annual Meeting, Tampa, FL, October 2015.
- Pantoja JL, Zhang Z, Tartibi M, Sun K, Macmillan W, Guccione JM, Ge L, Ratcliffe MB. Residual stress impairs pump function after the Dor procedure: A finite element analysis. Abstract ID: 2115. Presented at the Biomedical Engineering Society 2015 Annual Meeting, Cardiovascular Engineering Track, Tampa, FL, October 2015.
- Warrick Macmillan, Nome et al. Photoenrichment: A novel fluorescence phenomenon studied using confocal microscopy. Presented at the 243rd American Chemical Society National Meeting, San Diego, CA March 2012.

COURSES TAUGHT - TEACHING ASSISTANT

University of Gothenburg

- Introduction to machine learning, Spring 2022
- Basic skills for language technology, Fall 2021
- Introduction to programming, Fall 2019

PROGRAMMING LANGUAGES

Agda, Haskell, Coq, Standard ML, Grammatical Framework, Lean, Twelf, Python, Javascript, Scheme, Java, C

COMPUTER TOOLS

Linux (Arch, Mint), MacOS, Bash, Vim, Emacs, Git, VMWare, Vagrant, SQL, Tmux, Jekyll, HTML, CSS, REST, Docker, Kubernetes, Datadog, Bitbucket pipelines AWS (S3, Lambda, Glue, EMR, EC2, Athena, IAM), Kafka, Jsonnet, Apache Airflow, React, Redux, Dropwizard, Maven, testing libraries (Quickcheck, Cucumber, Mockito)

DESIGN AND ANALYSIS SOFTWARE

- Analysis: LS Dyna, TrueGrid, Patran
- Design: Autocad, Rhino, Grasshopper, Solidworks, Illustrator, Photoshop, LightRoom

FABRICATION

- Materials: Wood, Metal, Fabric, Paper, Paint, Screen-printing
- Skills: Architecture, DSLR Photography, Construction, Heavy Equipment
- Equipment: Laser Cutters, CNCs, Saws, Drills, Grinders, (basic) Mig welding

SUMMER SCHOOLS

- Spring School on Homotopy Type Theory, April 2021
- Midlands Graduate School in the Foundations of Computing Science, April 2021
- Hilbert Bernays Summer School on Logic and Computation, October 2020
- 25th Estonian Winter School in Computer Science (EWSCS), March 2020
- Oregon Programming Languages Summer School, June 2019
- Oregon Programming Languages Summer School, June 2018
- Oregon Programming Languages Summer School, June 2017

HONORS

Deborah Jackson Mathematics Award, Emory University
Dean's List, Emory University
Crew Team, Emory University

REFERENCES

Inari Listenmaa,
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+46 76 317 85 90

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