Daniel Fedorin

🏠 **Corvallis, OR**   📞 **(503) 702 0929**   ✉ **danila.fedorin@gmail.com**

Education

Bachelor of Science, Oregon State University, Major: Computer Science | Minor: Mathematics - Completed June 2020 • **4.0 GPA**
Master of Science, Oregon State University, Computer Science - Expected June 2022 • **4.0 GPA**

Skills

Programming Languages: C, C++, Haskell, Elm, Idris, Crystal, Kotlin, Java, Python, JavaScript, Coq, Nix, Haxe
Languages: English (native), Russian (native), French (conversational, DELF B1 certification)
Additional Skills: Compiler design, formal verification, algorithms, low-level development.

Projects

bloglang 🔗 — Compiler for a purely functional, lazily evaluated language explained in-depth on personal blog.
maypop 🔗 — Instructional implementation of a dependently typed functional programming language capable of formal proofs.
pegasus 🔗 — LALR parser generator currently supporting the C and Crystal languages.
scylla 🔗 — Elm-based purely functional front end for the Matrix chat protocol.

Publications

Jácome Cunha, Mihai Dan, Martin Erwig, **Daniel Fedorin**, Alex Grejuc: *Explaining spreadsheets with spreadsheets (short paper)*.
    GPCE 2018: 161-167
Divya Bajaj, Martin Erwig, **Daniel Fedorin**, Kai Gay: *A Visual Notation for Succinct Program Traces*, VL/HCC 2021

Work Experience

Research Assistant, Programming Language Theory
Oregon State University, Corvallis, OR | Spring 2018 - Present

- Formalized denotational and operational semantics of new **explanation-oriented programming languages.**
- Devised and implemented language to explain behavior of spreadsheets to new users.
- Developed tooling in **Haskell** to interpret, verify, generate, and debug programming languages.
- Contributed to **research papers** published to the GPCE and VL/HCC.

Undergraduate Teaching Assistant, Programming Language Theory, CS 381
Oregon State University, Corvallis, OR | Winter 2020 - Spring 2020

- Engaged in weekly question-and-answer sessions regarding course topics.
- Aided students in implementing a final project in the form of a **custom programming language**.
- Proctored **quizzes and exams** for over 200 students.
- Organized **independent review sessions** attended by over 70 students.

Additional Experience

Technical Writer
Independent | Spring 2015 - Present

- Designed and published website currently live at danilafe.com.
- Authored blog posts on topics spanning data structures, web development, programming languages, and compilers.
- Formalized and described solutions to select Advent of Code problems using the **Coq proof assistant**.
- Created **14-part series** on compiler development, walking readers through lexing, parsing, compilation using LLVM, garbage collection, and polymorphic type checking.

Lead Programmer
Northwest Advanced Programming Workshop, Portland, OR | Summer 2017

- Designed and implemented a **desktop calculator** application with a focus on usability and feature-completeness.
- Worked on a variety of components, including parsing input through a custom regular expression engine, evaluating expressions through Taylor Series, and UI design.
- Profiled and debugged application using **VisualVM** in order to find inefficiencies, reducing computation time by 60%.
- Led a small team using the **git version control system**.
- Exercised public speaking and communication skills by reporting progress to supervisor and presenting to other teams.

Game Developer
Oregon Game Project Challenge, Portland, OR | Spring 2016 and 2017

- Worked in a team to complete video game to be presented at main event.
- Created a game engine from scratch using **Entity Component Systems** architecture.
- Used **OpenGL shaders** and normal mapping to create 2D-shadow system.
- Developed novel interaction between physical components (**microcontrollers**) and the video game for multi-user cooperation.

Honors and Awards

- *Drucilla Shepard Smith Award* — Awarded to students maintaining a GPA of 4.0 while attending Oregon State University.
- *Honor Roll (all terms)* — Awarded to students maintaining a full credit load and a GPA above 3.5.
- *Finalist* — Google Code-In 2016, online competition in which participants complete tasks for open-source projects.