Maksim Smolin

+1 (650) 772-0665 · maximsmol@gmail.com
535 Arastradero Rd · Apt 318 · Palo Alto CA · 94306-4318
linkedin.com/in/maximsmol · github.com/maximsmol

Summary
UC Berkeley freshman looking for Software Engineering internship or Computer Science research opportunity for summer of 2020. Interested in positions with heavy emphasis on CS theory and/or math. Strong background in algorithms and data structures, and college-level mathematics. Familiar with web and mobile development, low level development, networking, and reverse engineering.

Programming Languages
C++, Java, Python, JavaScript/Node.js, Haskell, Coq, Assembly, HTML, CSS

Technologies
React.js, MariaDB, Koa.js, NASM, SDL2, Radare2, GDB, LLDB, Git, LaTeX

Interests
Theoretical CS, Functional Programming, Formal Verification, Machine Learning, Programming Language Design, Computer Graphics, Operating Systems

Languages
English — Fluent
Russian — Mother tongue
Spanish — Basic knowledge

University of California, Berkeley · Berkeley, CA
Anticipated 2023; Intending Computer Science and Mathematics
ML@B member (Machine Learning @ Berkeley) ml.berkeley.edu

Fall 2019
- Data Structures
- Introduction to Abstract Algebra

Summer of 2019
- The Structure and Interpretation of Computer Programs (A+)
- Discrete Mathematics and Probability Theory (A)

Harvard University Secondary School Program · Cambridge, MA
Summer of 2018
- Multivariable Calculus (A)
- Linear Algebra and Differential Equations (A)

Coursera Courses · Online
From 2018
- Algorithms Part I
- Algorithms Part II
- Deep Learning Specialization

Henry M. Gunn High School · Palo Alto, CA
May 2019

Personal Projects

ParserGen · Parser creation toolkit · *Node.js*
https://github.com/maximsmol/ParserGen
Toolkit for creating LL1 parsers and RegEx tokenizers with verbose error reporting and from-scratch LL1 table generation, recursive descent RegEx string parsing, RegEx NFA generation and evaluation, token priority topological sorting, and splay-tree-based interval trees for verifying token non-intersection and coverage.

nOS · Operating system · *C++, Assembly, Haskell*
https://github.com/maximsmol/nos
32-bit x86 Operating system written from scratch with custom NASM bootloader, a complex Haskell Shake build system and C++ kernel and drivers. Currently able to boot and read ATA drives.

Open GraphEq · Graphing software · *C++*
https://github.com/maximsmol/Open-GraphEq
Implementation of an algorithm for generating robust graphs of mathematical functions presented in Jeff Turper's paper "Reliable Two-Dimensional Graphing Methods for Mathematical Formulae with Two Free Variables". Currently able to graph with domain-tracking and pixel-precision using custom interval arithmetic.

Sourcepawn · Open source compiler · *C++*
https://github.com/maximsmol/sourcepawn/tree/exp_enum_struct
Extensive work on the experimental version of the open source Sourcepawn language compiler. Implemented new language features in a mature codebase. Modified the parsing, type system, compiler checks, and code generation.

rolmodl · Graphics library · *C++*
https://github.com/maximsmol/rolmodl
C++ API for the Simple Directmedia Library (SDL). Carefully designed C++ interface for the C-based SDL, focused on making memory safety trade-offs explicit and preserving performance of the original.

prs · Parsing techniques research · *Haskell*
https://github.com/maximsmol/prs
Research into parsing with nondeterministic finite automatons to overcome the necessity to preserve the entire input stream upon branching imposed by traditional monadic parsers. Inspired by arrow parsers.

resauce · Remote console · *Haskell*
https://github.com/maximsmol/resauce
Binary remote console protocol implementation for the Source engine with a readline CLI.

NoDialogs · Text editor plugin · *Python*
https://github.com/maximsmol/NoDialogs
Sublime Text plugin that replaces sluggish system file dialogs with a blazingly fast versatile input box.

Volunteer Experience

Project QUERB · Palo Alto, CA
2017-Ongoing; Website developer
Development and maintenance of the project QUERB website (https://projectquerb.org/) running on an Ubuntu, utilizing prerendering, React.js, Bootstrap, Webpack, Node.js, Koa.js, and Babel.
2nd place in AAPT 2019 Apparatus Competition.

Get Involved Palo Alto · Palo Alto, CA
2017-2018; Mobile application developer
Design and development of a community hour tracking iOS application using React Native.