KEVIN GLEASON

✉kaagleason@gmail.com • 🌐kevingleason.me • ⌂/GleasonK • 🔗/in/kevinagleason
Boston, MA • 440.527.4866

TECHNICAL SKILLS_____

Language Skills
- Compiler Front-Ends
- Language Design
- AST Transformations
- Static Analysis

Other Skills & Accomplishments
- GitHub: 800☆ | 500⑂
- CompTIA Security+ Certified
- PenTest+ in progress
- Amateur Reverse Engineer

Language Proficiency (Ranked)
- C / C++ (C++17)
- MATLAB / Python / JS
- Go / Java
- F# / OCaml / +*More*

PROFESSIONAL EXPERIENCE_____

The MathWorks, Inc.   Boston, MA
Compiler Front-End, Engineer II   July 2016 – Present

Language Design
- Analyzed customer pain points regarding functions in MATLAB; Proposed design direction to enable non-developer users to complete function authoring and higher-order function workflows. Gained approval from key decisionmakers.
- Member of core design teams for MATLAB language features, including Function Argument Validation, Hex and Binary Literals, and Name=Value Syntax; Designed/led UX tests and ran static analyses to craft data-driven designs.

AST Transformations / Static Analysis
- Lead developer for Function Argument Validation feature; utilizing AST transformations to provide interface-boundary dynamic type checking to reduce redundant (and often erroneous) hand-written error checking.
- Created prototypes of several language proposals: For-each loops, function decorators, function-static variables, template literals, chained relational operators, and more, using AST Transformations to expedite development process.
- Created and maintained Static Analysis Toolkit to simplify data collection of syntactic pattern frequency; Used to assess compatibility impact of design choices, and analyze feature usage patterns to propose enhancements and optimizations.

Security / IP Protection
- Part of design team for IP Protected obfuscated code files to provide clients a means of protecting intellectual property in shared code files; Performed common DLL analysis techniques to qualify design security and implementation.
- Reverse engineered Secure MATLAB Compiled Archives using static and dynamic methods, including Ghidra, API Monitor, gdb, and linux kernel traces; Provided write up to demonstrate vulnerabilities / importance of layered security.
- Pen tested MATLAB for CVE's: Reported ZipSlip in MATLAB Server to relevant team, and was member of emergency response team for Trojan Source; implemented Trojan Source mitigation in language front-end.

Management / Communication
- Supported many cross-functional projects including Modified Condition/Decision Coverage report generation, AST-based MATLAB to C++ Code Generation, WebAssembly Compilation of Front-End machinery for MATLAB Online.
- Mentor to several new hires in internal rotational program; Speaker at MathWorks Compiler Training to teach about execution pipeline and answer questions for candidates interested in the language department.

PubNub Inc.   May 2015 – August 2015
Embedded Systems and IoT Engineer   San Francisco, CA
- Maintained and enhanced PubNub SDKs for Android, Polymer, Go, and WebRTC for stability and feature requests
- Created a PubNub Android WebRTC SDK to make the addition of video chat to Android apps trivial.

EDUCATION_____

Boston College – Morrissey College of Arts and Sciences   Chestnut Hill, MA
Bachelor of Science in Computer Science, Minor in Biology (Bioinformatics) | GPA 3.66   May 2016

LEADERSHIP AND ACTIVITIES_____

Northeastern University Women's Club Soccer   Boston, MA
Head Coach   Sep 2018 –Present
- College club-level soccer coach. Qualified for nationals on two occasions (2018, 2021).

Independent Tech Repair   Boston, MA
Hobbyist Technician   Jan 2021 – Present
- Bought broken lots of game consoles, controllers, electric pianos, headphones, and more, to repair using multimeter, soldering iron, hot air station, etc. Goal of breaking even on initial tool expenses, profited over $1500 in 2021.
- Recorded interesting repairs and shared to YouTube as entertainment-educational content, gaining >60k views in 2021.