

JAVIER CABRERA

Computer Scientist
Software Engineer

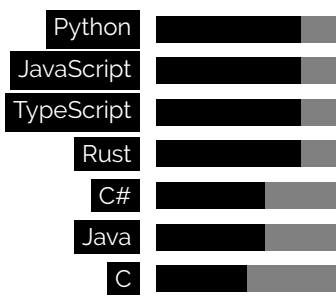
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WHO AM I?

My name is Javier Cabrera, I am 29 years old, and I am currently working as a PhD student at KTH Royal Institute of Technology in Sweden. I graduated from the University of Havana in 2016 with a Master's Degree in Computer Science. I have approximately 6 years of work experience both in Academia and Industry. As a PhD student, I am currently researching on Software Engineering, more specifically, by using Software Diversification for reliability and security. Software and automation are my passions, and I enjoy using my skills to contribute to these topics in all ways that I can.

PROFICIENCY



LANGUAGES

Spanish - native
English - proficient
Swedish - rudimentary

- Git
- CI
- Docker
- Microservices
- Kubernetes
- Algorithm's design
- Compiler's design and implementation
- LLVM
- High Performance Computing
- Data Science
- Web Technologies + WebAssembly
- Team leadership

EXPERIENCE

- 09/2021 – 12/2021 Contractor Software Engineer** Fastly Inc.
I implemented a specific *subproject* for the testing platform in the Fastly WebAssembly compiler. I contributed to the testing pipeline of Fastly through fuzzing. Meanwhile, I was credited a *CVE* found in the Lucet's compiler used by their edge-cloud computing platform.
Rust • WebAssembly • Compilers • Fuzzing • libfuzzer
- 3/2019 – Present Phd. student/Researcher/Teacher assistant** KTH Royal Institute of Technology.
I do Software Randomization for Reliability and Security. During this time, we have contributed to the scientific community, and we have implemented pushing-the-limits tools, such as two software diversifies that are actually enforcing the security of top technology companies such as Fastly. Nevertheless, I teach Software Engineer and Language-Based Security at KTH for bachelor and mater levels respectively.
Diversification • Automatic Testing • Compilers • DevOps • Edge computing
- 11/2017 – 3/2019 Software Engineer/Full stack developer** Iberant SL.
During my time in Iberant, I mostly worked as a full stack developer creating an ERP system. Concretely speaking, we created an event sourcing architecture following the specifications of our clients at that moment. We integrated technologies such as Azure, and we even created our own DSL implementation to support an easy-to-use IFTTT platform. Nevertheless, I also worked with mobile development technologies such as Xamarin.
.Net Core • Microservices • MsSQL • ReactJS • Redux • Azure • Xamarin
- 2016 – 3/2019 Assistant professor** University of Havana
After graduating, I received an offer to be an assistant professor at University of Havana teaching programming languages and compiling theory.

EDUCATION

- 2019 – 2022 (WIP) Licentiate degree** KTH Royal Institute of Technology
Completed courses: Programming for Data Science , Cyber-physical systems safety and security , Introduction to High Performance Computing , Research preparation course in programming languages and formal methods , Advanced Ethical Hacking , Critical Perspectives on Data Science and Machine Learning , Solving Combinatorial Problems with MiniZinc .
- 2016 Postgraduate Diploma equivalent to European master's degree in CS** University of Havana

Papers

- [1] Javier Cabrera Arteaga, Pierre Laperdrix, Martin Monperrus, and Benoit Baudry. "Multi-Variant Execution at the Edge". In: *arXiv e-prints*, arXiv:2108.08125 (Aug. 2021), arXiv:2108.08125. URL: <https://arxiv.org/abs/2108.08125>.
- [2] Javier Cabrera Arteaga, Orestis Floros Malivitsis, Oscar Luis Vera Pérez, Benoit Baudry, and Martin Monperrus. "CROW: Code Diversification for WebAssembly". In: *Proceedings of MADWeb, NDSS*. 2021. URL: <https://api.semanticscholar.org/CorpusID:237108257>.
- [3] Javier Cabrera Arteaga, Shrinish Donde, Jian Gu, Orestis Floros, Lucas Satabin, Benoit Baudry, and Martin Monperrus. "Superoptimization of WebAssembly Bytecode". In: *Conference Companion of the 4th International Conference on Art, Science, and Engineering of Programming*. <programming> '20. New York, NY, USA: Association for Computing Machinery, 2020. URL: <https://doi.org/10.1145/3397537.3397567>.
- [4] Javier Cabrera Arteaga, Martin Monperrus, and Benoit Baudry. "Scalable Comparison of JavaScript V8 Bytecode Traces". In: *Proceedings of the 11th ACM SIGPLAN International Workshop on Virtual Machines and Intermediate Languages*. VMIL 2019. New York, NY, USA: ACM, 2019. URL: <http://doi.acm.org/10.1145/3358504.3361228>.

Supervised master theses

- [1] Camille Fournier. *Comparison of Smoothness in Progressive Web Apps and Mobile Applications on Android*. 2020.
- [2] Adam Benali. *Neural Decompilation of WebAssembly*. 2021.