Open-source tools

During the past seven years, I have have developed and implemented a number of impactful program analysis techniques that have not only resulted in high-quality publications but also **open-source tools** for improving the reliability and security of real-world software applications:

- SVF (`http://goo.gl/m3eYlu`),
- PTABen (`https://goo.gl/CctGWO`),
- SELFS (`http://goo.gl/jgV3M0`),
- ELF (`http://goo.gl/WoYYNt`), and
- FSAM (`http://goo.gl/4f2a9y`)

These tools have been used and cited by leading research groups worldwide from both industry and academia, including Google Research, Oracle Research Lab, IBM, Huawei, Harvard University, Georgia Institute of Technology, University of Washington, University of Waterloo, Tokyo University.

One of my open-source tools, SVF, has attracted 1000+ downloads (`https://goo.gl/WYxE9I`) since its first release in July 2015 on Github. It serves as a foundation for developing other program analyses. On its GitHub website, SVF has 26 watches (`https://goo.gl/4qNRu2`) + 190 stars (`https://goo.gl/hoaBpF`) + 61 forked repositories (`https://goo.gl/DhdjVS`) with different participants and contributors from both industry and academia, including IBM, Intel, Huawei, Qualcomm, Veracode, Pathscale and ALLVM Research.

Let me list some comments (extracted from emails or GitHub websites) made on my open-source tools by people from both industry and academia:

- *"Looking for llvm pointer analysis I stumbled over SVF and was quite impressed by it's capabilities - thanks a lot for making it open source!"*

  — Matthias Neugschwandtner $\langle EUG@zurich.ibm.com \rangle$, a postdoctoral researcher working in the Cloud and Storage Security Group at IBM Research.

- *"Your tests have been most helpful! ...I'm trying to convince Arthur that SVF can solve some (all?) of the design requirement laid out by Chandler (Google)."*

  — C Bergstrm $\langle cbergstrom@pathscale.com \rangle$ CTO at Pathscale, HPC Compiler Company.

- *"First, I'd like to thank you for your work on SVF and for making it public! The academic LLVM community is in dire need of such a framework and I am very interested in seeing your framework become the foundation for many analyses moving forward. "*

  — Will Dietz $\langle wdietz2@illinois.edu \rangle$, Researcher at UIUC and ALLVM.

- *"I came across SVF recently and am really interested in using it. ... its a really nice set of tools! Again thanks! "*

  — Jared Carlson $\langle jared.carlson23@gmail.com \rangle$ Sr. Security Researcher at Veracode, a leading company working in software application security.

- *" I remember watching your presentation on SVF and thought: that's cool, was so excited to be able to reach you. . . . Would be great to be able to chat about how maybe you and our team might be able to work on interesting things together"*

  – Dean Michael Berris $\langle dean.berris@gmail.com \rangle$, Software Engineer at Google.

- *'I hope to use SVF for the DARPA TRACE grant application.'*

  — Stephen N. Lee from University of Wisconsin-Madison

- *"I'm currently working with your awesome SVF analysis."*

  — Simon Schmitt $\langle symenschmitt@web.de \rangle$ from TU Darmstadt.

- *"I've run into your paper: Region-based Selective Flow-Sensitive Pointer Analysis. It's a great work!"*

  — Marek Chalupa $\langle mchalupa@mail.muni.cz \rangle$ from Masaryk University.

- *"Thank you again and I think that the SVF will be promising for my work."*

  — Muhammad Refaat Soliman $\langle mrefaat@uwaterloo.ca \rangle$ from Waterloo University.

- *" We very much appreciate your work and would like to use the static pointer analysis you developed."*

  — Alexandra Jimborean $\langle alexandra.jimborean@it.uu.se \rangle$ from Uppsala University

- *" I'm very interested in the SVF analysis that can be performed with your software."*

  — Timo Bressmer $\langle timo.bressmer@uni - ulm.de \rangle$ from Ulm University.

- *"We heard a lot about SABER: Static Memory Leak Detection Using Full-Sparse Value-Flow Analysis. We would like to test our improvement ideas for SABER "*

  — Ahmed Tamrawi $\langle atamrawi@iastate.edu \rangle$ from Iowa State University.

- *"I recently tested SVF (commit 5355fc2). Great piece of work from my point of view! . . . Thank you for providing the code!"*

  — Oliver Braunsdorf $\langle oliver.braunsdorf@tu - ilmenau.de \rangle$ from at TU Ilmenau.

- *" As far as I can tell, the tool fixes all issues I have with musl libc. Thank you."*

  — Anh Quach $\langle aquach1@binghamton.edu \rangle$ from Binghamton University.

- *"Thanks for your great project. "*

  – Qingkai (Thomas) Shi $\langle qingkaishi@gmail.com \rangle$ at Hong Kong University of Science and Technology.

- *" Thanks for the quick answer:) I am looking at SVF implementation, in order to test one of our ideas. "*

  – David Trabish from Tel-Aviv University

- *" Many thanks for this excellent codebase! I'm new to SVF but I have updated it for LLVM 5.0.0 for a project of mine. "*

  – Jack Anthony from Cambridge University, UK

- *" Awesome project! "*

  – Miguel Arroyo from Columbia University