

PHI DIEP BUI

Ph.D Student, Uppsala University

BASIC INFORMATION

Full name : Phi Diep Bui
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DOMAIN INTEREST

- Program Verification/Testing
- Backend Programming
- Constraint Solving
- Reinforcement Learning

EDUCATION

- **Uppsala University, Sweden** *May 2015 - present*
Field of study: Ph.D in Computer Science
Advisor: Mohamed Faouzi Atig and Parosh Aziz Abdulla
- **University of Engineering and Technology, VNU Hanoi** *Sep 2007 - Nov 2014*
Field of study: B.Sc and M.Sc in Computer Science
Advisor: Mohamed Faouzi Atig and Nguyen Viet Ha

WORKING EXPERIENCE

- **Google Stockholm** *Jun 2020 - Aug 2020*
Position: Software Engineering Intern
I joined the Google Duo team for a 3-months internship. The intern project is about using Reinforcement Learning to increase calling quality with Google Duo/Google Meet.
- **Microsoft Research** *Jul 2018 - Oct 2018*
Position: Research Intern
I improved Corral model checker by allowing it working as a distributed model checker using Azure Cloud services. Thus, Corral is able to verify the safety property of much larger Boogie programs, e.g. 200k LoC.
- **Uppsala University, Sweden** *Mar 2014 - Oct 2014*
Position: Project Assistant
I developed a new model checker for verifying the safety property of concurrent C/C++ programs. It performs significantly faster than other model checker for C/C++ such as CBMC.
- **National Institute of Informatics (NII), Tokyo, Japan** *Mar 2013 - Aug 2013*
Position: Master Intern
I designed and developed a self adaptive systems for robots.
- **ISDS Ltd, Hanoi, Vietnam** *Jan 2011 - Jan 2012*
Position: Software Developer

PUBLICATIONS

- **Efficient Handling of String-Number Conversion** -
Parosh Aziz Abdulla, Mohamed Faouzi Atig, Yu-Fang Chen, Bui Phi Diep, Julian Dolby, Petr Janku, Hsin-Hung Lin, Lukáš Holík, Wei-Cheng Wu. 41st ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI'20.
- **Chain Free String Constraints** -
Parosh Aziz Abdulla, Mohamed Faouzi Atig, Bui Phi Diep, Petr Janku, Lukáš Holík. 17th International Symposium on Automated Technology for Verification and Analysis (ATVA'19). **Best Paper Award**.
- **Trau: SMT Solver for String Constraints** -
Parosh Aziz Abdulla, Mohamed Faouzi Atig, Yu-Fang Chen, Bui Phi Diep, Lukáš Holík, Ahmed Rezine and Philipp Rümmer. Formal Methods in Computer-Aided Design, FMCAD'18.
- **Flatten and Conquer: A Framework for Efficient Analysis of String Constraints** -
Parosh Aziz Abdulla, Mohamed Faouzi Atig, Yu-Fang Chen, Bui Phi Diep, Lukáš Holík, Ahmed Rezine and Philipp Rümmer. 38th ACM SIGPLAN Conference on Programming Language Design and Implementation, PLDI'17.
- **Counter-Example Guided Program Verification** -
Parosh Aziz Abdulla, Mohamed Faouzi Atig, and Bui Phi Diep. 21st International Conference on Formal Methods, FM'16.

**Authors are list in alphabetical order. I am the corresponding author of the publications above.*

PROJECTS

- **Efficient Solver for String Equations** 2016 - present
I am the main contributor of an open-source string solver **Trau**, targeting to grammar and transducer constraints. Trau uses Microsoft Z3 Satisfiability Modulo Theories as the external solver. Trau performs better than state of the art string solvers such as CVC4, Z3-str3, S3P.
- **Verification of Concurrent Programs** 2015 - present
I am the main contributor of a model checker **CEGPV** to verify concurrent C/C++ programs. CEGPV is about 10 times faster than CBMC - state of the art C++ model checker.

TEACHING

- Teaching Assistant of Programming Theory: Fall 2016, Fall 2017.
- Teaching Assistant of Operating Systems and Process-Oriented Programming: Spring 2016, Spring 2017, Spring 2018.
- Teaching Assistant of Global Software Development: Spring 2018, Spring 2019, Spring 2020.

SKILLS

C, C++, C# (expert), Java (proficient), Python (prior experience)

REFERENCES

- **Assoc. Prof. Mohamed Faouzi Atig**
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