

# Javad Ebrahimian Amiri

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## Qualifications

2016–2020 **Ph.D. in Computer Science**, *Australian National University*.

Thesis Topic *A Verifiable Foundation for Development of Programming Languages for Real-Time Systems*

2011–2013 **M.S. in Software Engineering**, *University of Tehran, Iran*, GPA: 17.7/20.

Thesis Topic *Resource Management for Accuracy Improvement in Real-Time Systems: A Prototypical Implementation*

2006–2011 **B.S. in Software Engineering**, *University of Tehran, Iran*.

## Career Interests

A practical research or engineering role in:

- *System software, including operating systems, compilers and language runtimes*
- *Safety-critical embedded systems with real-time requirements*
- *Emerging many-core and heterogeneous systems*

## Professional/Academic Experience

2020–Now **Software Developer**, *Australian National University*.

Develop, maintain and enhance software in the Memory Management Toolkit (MMTk) project and its bindings for OpenJDK, V8 and JikesRVM:

- Programming in Rust, C/C++, Java, Python and X86 assembly
- Debugging large-scale multi-language low-level performance-critical code
- Working independently with minimal supervision
- Working in a diverse team

2017–2018 **Tutor of the Computer Organization and Program Execution course**, *Australian National University*.

2014–2016 **Convenor of the Operating Systems Lab**, *University of Tehran*.

Linux kernel programming:

- Programming in C on Linux
- Debugging low-level kernel code
- Teaching

2012–2016 **Tutor of the Operating Systems course**, *University of Tehran*.

Fall 2015 **Educator of a workshop**, *Sharif University of Technology*, Title: Conceptual study and preliminary performance evaluation of some RTOSs.

## Selected Postgraduate Courses

- High-Performance Computing 20/20
- Fault-Tolerant Systems 18.8/20
- Performance Evaluation 18.5/20
- Adv. Operating Systems 17/20
- Multi-Core Embedded Systems 20/20
- Adv. Computer Architecture 18.5/20
- Stochastic RT Systems 18.5/20
- Real-Time Systems 16.5/20

## Selected Projects

- MMTk Core **A** high-performance Memory Management Toolkit, in Rust
- MMTk V8 **A** high-performance third-party heap for Google V8, in Rust, C++ and X86 assembly
- MMTk OpenJDK **A** high-performance third-party heap for Oracle OpenJDK, in Rust, C++, Java and X86 assembly
- MMTk JikesRVM **A** high-performance third-party heap for JikesRVM Java VM, in Rust, Java and X86 assembly
- RTZebu (Ph.D.) **A** high-performance and predictable programming language VM for real-time systems, in Rust, C and X86 assembly
- RT-RPython (Ph.D.) **A** language VM for a restricted real-time variant of Python-2 written in Python, Rust, C and X86 assembly
- RTEMS (M.S.) Improving the timing behaviour of the network interrupt manager in RTEMS RTOS, in C and ARM assembly
- GEM5 (M.S.) Adding fault injection and AVF calculation to the GEM5 full-system simulator in C++

## Technical Skills

- Programming Languages **Rust, C/C++, X86 & ARM assembly, Java, C#, Python.**

## Honors and Awards

- Awarded **Ph.D. scholarship for international students, Australian National University.**  
**Supplementary Ph.D. scholarship, CSIRO Data61 (NICTA).**
- Ranked **4<sup>th</sup> among 2000+**, *Ph.D. in software engineering entrance exam, Iran.*  
**90<sup>th</sup> among 30000+**, *M.S. in software engineering entrance exam, Iran.*  
**394<sup>th</sup> among 200000+**, *University entrance exam, Iran.*

## Publications

J. E. Amiri and M. Kargahi. A predictable interrupt management policy for real-time operating systems. In *2015 CSI Symposium on Real-Time and Embedded Systems and Technologies (RTEST)*, pages 1–8, Oct 2015.

Javad Ebrahimian Amiri, Stephen M. Blackburn, Antony L. Hosking, and Michael Norrish. Designing a low-level virtual machine for implementing real-time managed languages. In *Proceedings of the 11th ACM SIGPLAN International Workshop on Virtual Machines and Intermediate Languages, VMIL 2019*, page 1–11, New York, NY, USA, 2019. Association for Computing Machinery.