Ismail Kuru, Ph.D.

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Employment History

2026(March) –	**Postdoctoral Researcher** Aarhus University, Computer Science. Subject: Arm Relaxed Memory meets Virtualization. Advisor: Prof. Lars Birkedal.
2025(July) – 2026 Feb	**Postdoctoral Researcher** Drexel University, College of Computing & Informatics.
2016(October) – 2025(June)	Doctoral **Doctoral Research Fellow.** Drexel University, College of Computing & Informatics.
2019(Apr) – 2019(June)	**Research Intern.** BedRock Systems.
2016(Jan) – 2016(Sep)	**Senior Software Engineer.** Crytek GmbH.
2014(Sep) – 2015(Feb)	**Research Assistant.** Koc University. Advisor: Dr. Serdar Tasiran.
2014(Apr) – 2014(Aug)	**Research Intern.** Microsoft Research. Advisors: Dr. Matthew J. Parkinson, Ben Hall and Serdar Tasiran.
2013(Sep) – 2014(Mar)	**Visiting Research Student.** University of Washington. Advisor: Dr. Dan Grossman.
2012(Sep) – 2013(Sep)	**Research Assistant.** Koc University.
2012(Mar) – 2012(Sep)	**Software Developer.** GNU Compiler Collection, Google Summer of Code 2011. Advisor: Dr. Albert Cohen.

Education

2018 – 2025 **Ph.D., Drexel University, U.S.A** in Software Reliability.
Thesis: *Modal Abstractions of Systems Concepts for OS Kernel Verification*
Advisor: *Dr. Colin S. Gordon*
Funding: NSF Career Project ($link$)

2016 – 2018 **M.Sc. Computer Science, Drexel University, U.S.A.**
Internships: BedRock Systems
Coursework Completed

2015 **M.Sc. Computer Science, Koc University, Turkey** in Software Verification.
Thesis title: *Static Methods for Checking Correctness of Programs on Relaxed Memory Systems*.
Advisor: *Dr. Serdar Tasiran*
Scholarship: 1 of 18 Microsoft Research Europe PhD Scholarships ($link$)
Internships: University of Washington Visit and MSR Cambridge
Coursework Completed in Technical University of Munich, Germany.

Skills

Languages	Strong reading, writing and speaking in English and Turkish. Intermediate German.
SMT Based Verification	VCC, Boogie, QED.
Model Checking	NuSMV.

Skills (continued)

Type Theory Based Verification — Roqc.

Miscellaneous Experience

Awards and Achievements

2018 — **Scholarship**. DeepSpec Summer School Scholarship Princeton U.S.A, 2018.

2017 — **Scholarship**. PLMW Scholarship for ICFP'17 Oxford U.K, 2017.

2014 — **Travel Grant**. Microsoft Research Visitor Grants(Multiple) Hosted by Dr. Matthew Parkinson, 2014.

2011–2014 — **Graduate School Scholarship**. Received one of 18 Microsoft Research Europe PhD Scholarship awards, 2011-2014.

2012 — **Travel Grant**. from Koc University for VCLA Winter School Vienna, 2012.

2011 — **Travel Grant**. Inria-Paris Visitor Grants(Multiple) Hosted by Dr. Albert Cohen, 2011.

Summer/Winter Schools

2018 — DeepSpec Summer School Princeton U.S.A, 2018.

2017 — PLMW for ICFP'17 Oxford U.K, 2017.

— OPLSS Summer School Oregon U.S.A, 2017.

2012 — ACACES Sixth International Summer School Italy, 2012.

— Microsoft Research Ph.D. Summer School Cambride U.K, 2012.

— Vienna Center for Logic and Algorithms Winter School on Verification Wien Austria, 2012.

2010 — ACACES Sixth International Summer School Barcelona Spain, 2010.

Service and Volunteering

2021 — SIGPLAN-M Long Term Mentor (link)

2020 — POPL'20 Artifact Evaluation Committee.

2018 — PLDI'18 Student Volunteer.

2013 — SEFM'13 Subreviewer.

— SAS'13 Subreviewer.

2012 — RV'12 Subreviewer.

Research Publications

Conference Proceedings

1. Kuru, I. & Gordon, C. S. (2025a). Modal Abstractions for Virtualizing Memory Addresses. In *OOPSLA 2025*. Singapore. eprint: https://arxiv.org/abs/2307.14471

2. Kuru, I. & Gordon, C. S. (2019, April). A Type System for Read-Copy-Update Concurrency. In *European Symposium on Programming (ESOP 2019)*. Acceptance Rate 32.6% (28/86). Prague, Czech Republic. doi:10.1007/978-3-030-17184-1_4. eprint: https://arxiv.org/abs/1811.11853

3. Kuru, I., Matar, H. S., Cristal, A., Kestor, G., & Unsal, O. (2013). Parv: parallelizing runtime detection and prevention of concurrency errors. In S. Qadeer & S. Tasiran (Eds.), *Runtime verification* (pp. 42–47). Berlin, Heidelberg: Springer Berlin Heidelberg.

Thesis

1. Kuru, I. (2025). *Modal abstractions for operating system kernels* (Doctoral dissertation, Drexel University, Philadelphia, Pennsylvania). doi:10.17918/00010934

Books and Chapters

1. Cristal, A., Ozkan, B. K., Cohen, E., Kestor, G., Kuru, I., Unsal, O., … Elmas, T. (2015). *Verification tools for transactional programs* (R. Guerraoui & P. Romano, Eds.). Cham: Springer International Publishing. doi:10.1007/978-3-319-14720-8_14

Workshop

1. Kuru, I., Kulahcioglu Ozkan, B., Mutluergil, S. O., Tasiran, S., Elmas, T., & Cohen, E. (Proceedings of the 9th ACM SIGPLAN Workshop on Transactional Computing, TRANSACT 2014). *Verifying programs under snapshot isolation and similar relaxed consistency models*.
2. Matar, H. S., Kuru, I., Tasiran, S., & Dementiev, R. (5th Workshop on Determinism and Correctness in Parallel Programming, WoDet 2014). *Accelerating precise race detection using commercially-available hardware transactional memory support*.
3. Kuru, I. & Gordon, C. (13th Workshop on Programming Languages and Operating Systems PLOS 2025 – Co-located with SOSP 2025). *Modal verification patterns for systems software*.

Tech Report

1. Kuru, I. & Gordon, C. S. (2025b). Modal verification patterns for systems. arXiv: 2506.01719 [cs.LO]. https://arxiv.org/abs/2506.01719
2. Kuru, I. & Gordon, C. S. (2024). Modal abstractions for virtualizing memory addresses. arXiv: 2307.14471 [cs.PL]. https://arxiv.org/abs/2307.14471
3. Kuru, I. & Gordon, C. S. (2018). Safe deferred memory reclamation with types. arXiv: 1811.11853. http://arxiv.org/abs/1811.11853

References

Available on Request