CANER DERİCİ

Computer Science PhD Candidate

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SELECTED PROJECTS

Pycket: A tracing JIT compiler for self-hosting Racket[1]

- I am the main developer and maintainer. I re-implemented the front-end to make the Racket bootstrap itself on Pycket, i.e., achieved a full Racket implementation on RPython framework. Developed performance debugging tools, implemented various optimizations and large number of run-time primitives. Maintained and improved the data structure implementations (hash tables, vectors, structs etc.).

HazirCevap (Witty): A closed domain question answering system for high school students

- I led the research and development, 3 faculty members and 4 grad students were involved. This was my MSc thesis work (see Publications). I developed a hybrid model for question analyzing (Hidden Markov Model along with a rule-based model), developed a reliability score for web-pages/documents, used the Indri search engine for processing and retrieval for answer generation, implemented both the front and back-end in Python.

Sessizliğe Oku (Read to Silence): An application to teach people with hearing disability how to read

- I was the main developer. 2 faculty members from Linguistics, 1 from CS, and 2 RAs were involved. We aimed to develop a stable framework, so Turkish grammar lectures and exercises could be easily accessible for Deaf people. Collaborated with the linguists to implement a web & mobile app specifically designed for Deaf people. Used JavaScript, HTML and PhoneGap.

Rax: A full-stack nanopass compiler from a small subset of Racket to x86_64 assembly [2]

- Started for fun, turned into a school project. Two-person collaboration. I built and tested all the passes (e.g., closure conversion, register allocation, code-gen, etc.).

FARS: Functional Automated Reasoning System[3]

- A resolution-refutation style automated theorem prover. I developed it for fun at first, then I turned it into a school project. Written all in Racket by myself.

PUBLICATIONS

- Flatt M., Derici C. Dybvig R. K., Keep A. et. al. "Rebuilding racket on chez scheme (experience report)", ICFP'19
- Derici C. et. al. "A closed-domain question answering framework using reliable resources to assist students" Natural Language Engineering'18
- Derici C. et. al. "Question analysisfor a closed domain question answering system", CICLING'15
- Derici C. et. al. "Rule-basedfocus extraction in Turkish question answering systems", SIU'14
- Başar R. E., Derici C., and Şenol Ç. "World With Web: A compiler from world applications to JavaScript". Technical Report, Scheme and Functional Programming Workshop'09

[1] http://www.github.com/pycket/pycket
[2] https://github.com/cderici/rax
[3] https://github.com/cderici/FARS

EDUCATION

- **PhD** (Grad. 2020), CS, Indiana University, USA
- **PhD** CS, Boğaziçi University, Turkey (Dropped)
- **MSc** CS, Boğaziçi University, Turkey
- **BSc** CS, Istanbul Bilgi University, Turkey

EXPERIENCE

- **Teaching & Research Assistant**, Indiana University, 2015 – 2019. Taught Introduction to Programming, Domain Specific Language Design.
- **Product Development Specialist**, Asseco SEE, 2013. Developed and tested virtual point-of-sale applications. Used Java, Tomcat, Spring, Jira.
- **Teaching Assistant**, Istanbul Bilgi University, 2010 – 2013. Taught Data Structures & Algorithms, Programming Language Principles, Database Systems.
- **Hackathonist'14**, Istanbul, 2014. Developed a Google Glass application (running on a mock glass API) that talks with the CitySDK for various smart city tasks (e.g., finding a suitable bus-route).

AWARDS & SCHOLARSHIPS

- Full Scholarship for BSc, 2005-2010
- Research Scholarship for MSc (fully funded for 2 years)
- Scholarship for a research project on teaching natural languages to hearing impaired, 2014.

SKILLS

Racket ●●●●●
Python ●●●●●
JavaScript ●●●○○
Java ●●●○○
C/C++ ●●○○○
Go, Rust, Haskell ●○○○○
SQL, Matlab, R, CSS ●○○○○

Linux ●●●●●
Git/Version Control ●●●●●
LaTeX ●●●●○
Emacs ●●●●○

SPOKEN LANGUAGES

Turkish (native) ●●●●●
English (lived in US since 2015) ●●●●○

Last compiled on September 3, 2019