CANER DERİCİ

Software Engineer – ABD PhD Candidate, Computer Science, Programming Languages

@ caner@canerlab.live UT, USA canerlab.live cderici Extended (CV): cderici.github.io/resume

SELECTED PROJECTS

Juju: Universal Operator Life-cycle Manager[1]

- Juju is an orchestration and modeling tool for deployment of complex cloud workloads. It manages the life-cycle of operators for Kubernetes and traditional Linux apps, with automated microservice integration. It facilitates day-2 operations (e.g. scaling, upgrading and monitoring). I work in the core dev team (of 15). I maintain the main clients (e.g., cli, python-libjuju[2]), work on the facade API, and data schema for moving from mongoDB to dqlite, and general bug fix and maintenance. Mainly in Go and Python.

Terraform Juju provider [3]

- A provider that enables integration with Juju while managing terraform environments. Part of my work on the Juju API, implemented new features, worked on migrating from the sdk2 to the provider framework, maintained release cadence of new versions. All in Go.

Pycket: A tracing JIT compiler for self-hosting Racket[4]

- PhD project on programming languages. Main developer and maintainer for 5 years. I re-designed the compiler front-end to make Racket bootstrap on Pycket, i.e., achieved a full Racket implementation on RPython framework. Developed performance analysis/debugging tools, theoretical models, implemented optimizations, data structures and run-time primitives.

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

- Open source project. Built and tested all the passes (e.g., closure conversion, register allocation, code-gen, etc.). Implemented optimizations, e.g. loop-invariant code motion, constant propagation, tail-calls etc.

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

- MSc thesis project on NLP and machine learning (see Publications). Lead the R&D (3 faculties and 4 grad students). Developed statistical model for question analysis, reliability and relevance metric for web-documents, used Indri engine for IR, answer generation. Implemented full stack in Python.

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 analysis for a closed domain question answering system", CICLING'15
- Derici C. et. al. "Rule-based focus 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] https://juju.is/
[2] https://github.com/juju/python-libjuju
[3] https://github.com/juju/terraform-provider-juju
[4] http://www.github.com/pycket/pycket

EDUCATION

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

EXPERIENCE

- **Software Engineer II (L3)**, Canonical, **2021-Present**. Juju core team. Mainly in Go, Python.
- **Course Instructor**, Indiana University, Spring **2021**. Compilers and Principles of Programming Languages.
- **Teaching & Research Assistant**, Indiana University, **2015–2020**. Taught Advanced Compilers, Domain Specific Language Design, etc.
- **Product Development Specialist**, Asseco SEE, **2012-2013**. Developed and tested virtual point-of-sale applications. Used Java, Tomcat, Spring, Mercurial, Jira, Jenkins.
- **Teaching Assistant**, Istanbul Bilgi University, **2010 – 2013**. Taught Data Structures & Algorithms, Programming Language Principles, Database Systems.

TECH SKILLS

Python	●●●●●
Go	●●●●○
Racket/Scheme/Lisp	●●●●●
Java, C/C++	●●●○○
Haskell	●●●○○
SQL, Matlab, R, CSS, JavaScript	●●●○○
Linux	●●●●●
Docker, LXD - Containers	●●●○○
AWS, GCE, k8s - Cloud Clusters	●●●○○
Git, Hg - Version Control	●●●●●
Maven, Jenkins - CD	●●●●○
Travis, GH Actions - CI	●●●●●
LaTeX	●●●●○
Goland, Emacs, VSCode	●●●●○

AWARDS & SCHOLARSHIPS

- Full Scholarship for PhD, 2015-2020
- Research Scholarship for MSc 2012 (fully funded for 2 years)
- Full Scholarship for BSc, 2005-2010
- Scholarship for a research project on teaching natural languages to hearing impaired, 2014.

SPOKEN LANGUAGES

Turkish (native)	●●●●●
English (living in US since 2015)	●●●●●

Last compiled on March 26, 2024