CANER DERİCİ

Software Engineer – PhD Candidate (abd), Computer Science

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SELECTED PROJECTS

Juju: Universal Operator Life-cycle Manager[1]

- Juju is a model-driven orchestration tool for complex cloud workloads, managing the life-cycle of charmed operators for Kubernetes and traditional Linux applications.
  My role involves full-stack development, from the eventually consistent, worker-based distributed back-end, to the facade API, and the main clients (e.g., CLI, python-libjuju). I am also involved in transitioning the observer-based data layer from NoSQL MongoDB to the relational DQLite. I mentor and manage junior engineers, coordinate cross-team efforts, perform general maintenance and documentation work, conduct code reviews, and participate in hiring. Primarily in Go, and Python.

Terraform Juju provider

- A Terraform provider that enables integration with Juju while managing terraform environments. I implemented new resources and features (e.g., manual provisioning on AWS), worked on migrating from the sdk2 to the provider framework, and maintained release cadence of new versions. All in Go.

Pycket: A tracing JIT compiler for self-hosting Racket[2]

- 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 Racket to x86_64 nanopass compiler

- 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 on NLP and machine learning. Led R&D team (3 faculties, 4 grad students). Developed statistical model for question analysis and reliability and relevance metrics for web documents, using Indri engine for IR and response generation. Implemented full stack in Python.

SELECTED 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://github.com/juju/
[2] http://www.github.com/pycket/pycket

EXPERIENCE

- **Canonical USA**, Software Engineer II (L4). Enterprise cloud engineering, Juju team. Full-stack. Mainly in Go, Python. **2021-Present**
- **Indiana University**, Course Instructor, Teaching & Research Assistant. Taught Compilers and Principles of Programming Languages, Domain Specific Languages, etc. **2015–2021**
- **Asseco SEE Group**, Product Development Specialist. Developed and tested virtual point-of-sale applications. Used Java, Tomcat, Spring, Mercurial, Jira, Jenkins. **2012-2013**
- **Istanbul Bilgi University**, Teaching Assistant. Taught Data Structures & Algorithms, Programming Language Principles, Database Systems. **2010 – 2013**

EDUCATION

- **PhD (abd)**, Indiana University, USA, Computer Science, Programming Languages, 2015 - 2021
- **MSc**, Boğaziçi University, Turkey, Computer Science, NLP, Machine Learning, 2011 - 2014
- **BSc**, Istanbul Bilgi University, Turkey, Computer Science, 2005 - 2010

PRIMARY TECH SKILLS

Go	●●●●○
Python	●●●●●
Racket/Scheme	●●●●●
Java, C/C++	●●●○○
SQL, NoSQL	●●●●○
LXD, Docker - Containerization	●●●●○
AWS, GCE, k8s - Cloud Clusters	●●●○○
Linux	●●●●●
Git, Hg - Version Control	●●●●●
GH Actions, Jenkins - CI/CD	●●●●●
VSCode, Goland, Emacs, LaTeX	●●●●○

AWARDS & SCHOLARSHIPS

- Full Scholarship for PhD, 2015-2020
- Full Scholarship for MSc, 2012
- 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 July 20, 2024