

# CANER DERİCİ

Software Engineer – PhD Candidate (abd), Computer Science

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Extended (CV): [cderici.github.io/resume](https://github.com/cderici/resume)

## SELECTED PROJECTS

### Juju: Universal Operator Life-cycle Manager<sup>1</sup>

- Juju is a model-driven orchestration tool for complex cloud workloads, managing the life-cycle of charmed operators for Kubernetes and traditional Linux applications. Full-stack development, complex orchestration, fault tolerance, eventually consistent worker-based distributed back-end, improving facade-based API, maintaining main clients in front-end (e.g., CLI, python-libjuju). Also involved in transitioning data layer from NoSQL MongoDB to the relational DQLite. 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<sup>2</sup>

- 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

<sup>1</sup><https://github.com/juju/>

<sup>2</sup><http://github.com/pycket/pycket>

## EXPERIENCE

- Canonical USA, Software Engineer II (L4). Enterprise cloud engineering, Juju team. Full-stack. Mainly in Go, Python. **2021-2024**
- Indiana University, Course Instructor, Teaching & Research Assistant. Taught Compilers and Principles of Programming Languages, Domain Specific Languages, etc. **2015-2021**
- Asesco 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, Golang, 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 August 2, 2024