CANER DERİCİ

Software Engineer – PhD Candidate (abd), Computer Science

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SELECTED PROJECTS

Juju: Universal Operator Life-cycle Manager[1]

- Worked on distributed orchestration for managing complex cloud workloads for Kubernetes and traditional Linux apps across various cloud providers (e.g., AWS, GCE). Architected full-stack distributed components, tackled orchestration, reliability, fault tolerance, back-pressure handling, and more challenges on the eventually consistent, worker-based distributed back-end. Transitioned the observer-based data layer from NoSQL MongoDB to relational DQLite. Helped API design, and improved the facade-based API server. Maintained client libraries (e.g., python-libjuju[2]). Owned deliverables, maintained release cadence, participated in roadmap planning, coordinated cross-team work, mentored junior engineers, and took part in hiring. Primarily in Go and Python.

Terraform Juju Provider

- A Terraform provider that enables integration with Juju while managing terraform environments. 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 meta-tracing JIT compiler for self-hosting Racket[3]

- PhD thesis project. Helped design linklets (see publications) to make Racket run-time more portable, and using that I redesigned the compiler front-end to bootstrap the whole Racket language on a tracing JIT compiler. Developed performance analysis tools and formalisms, implemented run-time optimizations, data structures and run-time primitives.

Rax: A full-stack Racket to x86_64 nanopass compiler

- Open source project. Implemented all the passes (e.g., closure conversion, register allocation, code-gen, etc.), along with garbage collection. Developed optimizations, e.g. loop-invariant code motion, proper tail-calls etc.

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

- MSc thesis on NLP and ML. Led R&D team (3 faculties, 4 grad students). Developed a Hidden Markov random field model for question analysis, and relevance metrics for IR (used Indri engine) and response generation. 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] https://github.com/juju/python-libjuju
[3] 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**
- **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	●●●●●
C/C++, Java	●●●○○
SQL, NoSQL (MongoDB)	●●●●○
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 August 6, 2024