

FOIVOS TSIMPOURLAS

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PROFESSIONAL EXPERIENCE

OpenAI

Research Resident

July 2023 - Jan 2024

San Fransisco, CA

- Deep Reinforcement Learning for Scientist GPT.
- Chain of Thought, Privilege Information for Expert Iteration learning.

TikTok - ByteDance

Research Scientist, Part Time

Oct 2022 - Jan 2023

London, UK

- Deep Learning for fault localization of concurrency test executions of Go programs.

Facebook AI Research

Research Scientist Intern

May 2022 - August 2022

Menlo Park, CA

- Deep Reinforcement Learning for directed program synthesis.
- Contributed to CompilerGym, an open-source tool for Reinforcement Learning.

Athens Digital Arts Festival

Research Scientist, Part Time

Oct 2020 - Dec 2021

Remote

- Lead ML researcher of "AITrace", a real time recommendation system for arts museums.
- Deployed containerized ML application to arts exhibition in SNFCC-Athens, Greece.

ARM Ltd.

Software Engineer, Intern

Sept 2019 - Jan 2020

Cambridge, UK

- Designed and shipped distributed GICv4 interrupt controller for scalable multi-chip ARM-based cloud.
- Maintained and extended LLVM-based JIT compiler for ARM-v9.

EDUCATION

PhD in Informatics

University of Edinburgh (UoE)

2019 - 2023

Thesis: "*Deep Language Models for Software Testing and Optimisation*"

Supervisors: Hugh Leather, Ajitha Rajan, Pavlos Petoumenos

- Language modeling, directed program synthesis for compiler benchmark generation.

MSc by Research, CDT in Pervasive Parallelism

University of Edinburgh (UoE)

2018 - 2019

Distinction

Thesis: "*Learning to Encode and Classify Test Executions*"

Supervisors: Ajitha Rajan, Christophe Dubach

- Deep learning for compiler runtime analysis and program correctness prediction.

MEng, Electrical Engineering & Computer Science

National Technical University of Athens

2011 - 2018

Grade: 8.1/10

Thesis: "*Resource Management Techniques for Embedded Architectures executing Deep Neural Networks*"

Supervisors: Dimitrios Soudris

- Hardware acceleration of CNNs on edge devices. Improved GoogleNet's execution time by 16% on Intel's Myriad2.

PUBLICATIONS

- Go-Oracle: Automated Test Oracle for Go Concurrency Bugs** 2024
F. Tsimpourlas, C. Rosuero, C. Peng, P. Yang, A. Rajan ICSE
- Deep language models for software testing and optimisation** 2023
F. Tsimpourlas PhD Thesis
- BenchDirect: A Directed Language Model for Compiler Benchmarks** 2022
F. Tsimpourlas, P. Petoumenos, M. Xu, C. Cummins, K. Hazelwood, A. Rajan, H. Leather Arxiv
- BenchPress: A Deep Active Benchmark Generator** 2022
F. Tsimpourlas, P. Petoumenos, M. Xu, C. Cummins, K. Hazelwood, A. Rajan, H. Leather PACT
- Embedding and Classifying Test Execution Traces using Neural Networks** 2021
F. Tsimpourlas, G. Rooijackers, A. Rajan, M. Allamanis IET Software
- Supervised Learning over Test Executions as a Test Oracle** 2021
F. Tsimpourlas, A. Rajan, M. Allamanis SACSE
- A Design Space Exploration Framework for Convolutional Neural Networks Implemented on Edge Devices** 2018
F. Tsimpourlas, L. Papadopoulos, A. Bartsokas, D. Soudris CODES+ISSS

TECHNICAL SKILLS

Programming Languages	C++, C, Python, Bash, Assembly(x86, ARM, SHAVE-VLIW)
Machine Learning	Pytorch, Torchflow, wandb, brix, snowflake
Hardware Description	SystemC, LISA+
Compilers	LLVM, Libtooling, GCC, Clang
Instrumentation	Valgrind, GDB
Tools	CMake

ACADEMIC ACTIVITIES

Teaching

- Tutor, **Software Testing**, University of Edinburgh 2019-2022
- Tutor & Marker, **Microprocessors Systems Laboratory**, NTUA 2017 - 2018
- Teaching Assistant, **Embedded Systems Design**, NTUA 2017 - 2018

Peer Reviews

- FSE 2022
- PATMOS 2018

SCHOLARSHIPS AND AWARDS

- HFRI grant no. 00782 - 150,000 € for “AITrace” research project. 2021
- PhD scholarship, **EPSRC grant EP/L01503X/1** for “CDT in Pervasive Parallelism”. 2018
- High school award for national university entrance examinations score. Scored 97,48% (top 1% among 85.000 candidates) 2011