Konstantinos Psychas

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EDUCATION

Columbia University, NY, USA

- Ph.D. Candidate in Electrical Engineering — **Sep 2013 – Present**
- M.S. in Electrical Engineering — **Sep 2013 – Feb 2015**
  - Cumulative GPA: 3.83 / 4.00

National Technical University of Athens, Athens, Greece

- Ptychion (5 years of studies) in Electrical and Computer Engineering — **Sep 2006 – Dec 2011**
  - Graduated 9th out of 330
  - Cumulative Grade: 9.26 / 10.00

PROJECTS

Capstone Data Science Project on Internet Marketing — **Spring 2016**

- Collaborated with MediaMath company to predict user response to ad exposure; designed predictive feature and built classification models with Spark; achieved prediction accuracy comparable with MediaMath models; parts of modeling were adopted by company. *Scala* [Spark], *AWS* [S3]

Basic Functionality Shell — **Fall 2015**

- Implemented basic shell with some special commands that added and removed directories from path and listed history of commands among others; debugged implementation to avoid memory leaks; got full marks in the task *C* [Valgrind]

Project on Simulation of Fruit Fly Brain: Neurokernel — **Spring 2014 – Fall 2015**

- Developed web app visualization of fruit fly brain neurons, consisting of dynamic 3D and 2D views; optimized to make interface responsive even for thousands of neurons. *Javascript* [D3js, Threejs], *Python* [Flask]
- Built simulation of fly brain vision that allows customization through configuration files; projected video patterns on screens and then on fly's eye; processed it with different models; visualized output. Contributed to the brain model of retina and connected it to lamina. *Python* [Matplotlib, PyCUDA], *MATLAB*

Convex Optimization Project: Comparison of Uniform and Non Uniform Sampling — **Fall 2014**

- Formulated problem of choosing sampling times and sampled values of a signal as a convex optimization problem; solved the problem with alternate optimization; compared the result with the uniform sampling approach. *MATLAB*

Simulation of Ant's Locomotion — **Fall 2013**

- Implemented neuromechanical model that simulated ant's movement. With appropriate feedback to neurons ant could successfully move along a line or follow a square path. *MATLAB*

Internet Communication Application: Jitsi (former SIP Communicator) — **Spring 2010**

- Added new functionality to existing server and client versions of application; updated GUI of application; implemented blocking of incoming calls; kept communication compatible with SIP protocol. *Java*

PERSONAL PROJECTS

brain2neo — **Spring 2016**

- Python tool for conversion of an application's XML documents to Neo4j graphs.

logging_recipe — **Spring 2016**

- Logging recipe in Python that combines user and library configuration.

regexp — **Spring 2017**

- Regular Expression Parser in Java.

STANDARDIZED TESTS

- GRE computer science subject test: 840 (92%) — **Nov 2011**

WORK EXPERIENCE

Columbia University, New York, USA

- Teaching Assistant: Data Stream Processing (**Spring 2017**) Intro to Computational Neuroscience (**Fall 2016, Fall 2015, Fall 2014**), Deep learning (Spring 2016), Random Signals & Noise (**Spring 2015**)
  - Graded programming and written assignments, helped students in person or through course discussion forums, took part in design of course assignments and of solutions.

National Technical University of Athens, Athens, Greece

- EXPERIMEDIA Project Research Assistant **Oct 2011 – Jul 2012**
  - Improved performance of model for job admission in the cloud
  - Contributed to Java library that reads and posts comments to different social media
  - Performed administrative tasks to server that hosted web application for one of the project's experiment.
- Teaching Assistant: Algorithms and Complexity (**Fall 2010**), Introduction to Programming (**Fall 2007**)
  - Helped students in programming lab, participated in design of programming assignments.

LANGUAGES

- Greek: Native language.
- English: Fluent (speaking, reading, writing).
- German: basic (reading).

SKILLS

PROGRAMMING LANGUAGES

Prior Experience: R, Javascript, Java, C *Proficient*: MATLAB, Python

OTHER TOOLS

LaTeX, Vim, Microsoft Excel scripting, Git, Mercurial, AWS

AWARDS & SCHOLARSHIPS

- Edwin Howard Armstrong Fellowship (Columbia University **2014-2017**)
- Second Prize in International Mathematical Competition (IMC) **2009**
- Bronze Medal in International Mathematical Olympiad (IMO) **2006**

SELECTED COURSEWORK

- Graduate Level: Operating Systems, Machine Learning, Networks Algorithms and Dynamics, Advanced Digital Signal Processing, Convex Optimization, Information Theory, Computer Communication Networks, Internet-Economics Engineering and Implications for Society
- Undergraduate Level: Algorithms & Complexity, Software Engineering, Cryptography, Programming Languages, Databases, Internet Programming, Computer Architecture, Stochastic Systems and Communications, Graph Theory, Computer Graphics

SELECTED PUBLICATIONS

- K. Psychas, J. Ghaderi. "On Non-Preemptive VM Scheduling in the Cloud," in Proc. ACM Meas. Anal. Comput. Syst. 1, 2, Article 35, 29 pages **Dec 2017**.
- A. A. Lazar, K. Psychas, N. H. Ukani, Y. Zhou, "A Parallel Processing Model of the Drosophila Retina," *Neurokernel Request for Comments, Neurokernel RFC #3* , **Aug 2015**.
- K. Konstanteli, T. Cucinotta, K. Psychas, T. Varvarigou, "Admission Control for Elastic Cloud Services," in *Cloud Computing (CLOUD), 2012 IEEE 5th International Conference on* , pp.41-48, **Jun 2012**.

OTHER COLUMBIA PUBLICATIONS

- K. Psychas, and J. Ghaderi, On Non-Preemptive VM Scheduling in the Cloud, *ACM SIGMETRICS* **Jun 2018**.
- A. A. Lazar, K. Psychas, N. H. Ukani, and Y. Zhou Retina of the Fruit Fly Eyes: A Detailed Simulation Model *BMC Neuroscience* , Volume 16 (Suppl 1) , pp. 301 , **Jul 2015**.
- Y. Zhou, K. Psychas, N. H. Ukani, and A. A. Lazar Visualizing Parallel Information Processing in the Fruit Fly Retina *Computational and Systems Neuroscience Meeting* , **Feb 2016** , Salt Lake City, UT.
- L. E. Givon, A. A. Lazar, K. Psychas, N. H. Ukani, C.-H. Yeh, and Y. Zhou Neurokernel: Building an in Silico Fruit Fly Brain *IEEE EMBS BRAIN Grand Challenges Conference* , IEEE , **Nov 2014**.

INTERESTS & HOBBIES

Running, Board Games