Amnon Attali

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EDUCATION

University of Illinois Urbana-Champaign, Urbana-Champaign, IL — Sep 2019 – Present

- PhD in Computational Robotics and Reinforcement Learning
- Illinois Summer Teaching Institute 2021: learned about multimodal learning and course design, innovative assessments, and creative strategies for increasing student engagement.

Rutgers University Honors College, New Brunswick, NJ — Sep 2015 – May 2019

- B.S. in Computer Science and Mathematics, Minor in Cognitive Science
- 175 credits (120 needed to graduate), Major GPA: 4.00, Cumulative GPA: 3.96
- Graduate Coursework:

Machine Learning	Complexity and Pseudo-randomness	Linear Programming
Artificial Intelligence	Intro to Computational Robotics	Formal Languages and Automata
Natural Language Processing	Algorithms II	Combinatorial Methods in Complexity
Select Topics in Discrete Math	Graph Theory	Combinatorics

- Princeton University Coursework: ● Data Structures ● Theory of Algorithms

Budapest Semesters in Mathematics Study Abroad, Budapest, Hungary — Sep 2017 – Dec 2017

- Graduated with Highest Honors
- Coursework: ● Graph Theory ● Intro to Abstract Algebra ● Topics in Analysis ● Quantum Information ● Advanced Topics in Graph Theory (graduate course at ELTE)

Program in Algorithmic and Combinatorial Thinking (PACT), Princeton, NJ

- Student under Dr. Rajiv Gandhi — Jun 2012 – Aug 2015
- Mentor and grader for first year students — Jun 2013 – Aug 2015
- Coursework: ● Discrete Math ● Probability ● Randomized Algorithms ● Machine Learning

AWARDS & SCHOLARSHIPS

- University of Illinois Computer Science Outstanding Teaching Assistant Award — 2021 – 2022
- University of Illinois Computer Science Excellence Fellowship $6,000 / year — 2019 – 2020
- Rutgers Trustee Scholars, $13,000 / year — 2015 – 2019
- Henry Rutgers Scholarship, $6,000 / year — 2015 – 2019
- National Merit Scholarship, $1,000 / year — 2015 – 2019
- Rutgers SAS Excellence Award, $1,000 / year — 2016 – 2018
- Alan Marc Schreiber Memorial Scholarship & Research, $1,000 — 2018 – 2019
- Dean's List, Rutgers University, Honors College — 2015 – 2019
- Garden State Mathematics Competition, 1^{st} place Team, 2^{nd} place Individual — 2018
- William Lowell Putnam Mathematics Competition, 92^{nd} percentile Individual — 2018
- New Jersey High School Chess Team Championship 1st place — 2013 – 2015

EMPLOYMENT HISTORY

University of Illinois, Urbana-Champaign, IL — Aug 2020 – Dec 2021

- (3x) Teaching Assistant for CS 440: Introduction to Artificial Intelligence (Prof. Margaret Fleck)
- Teaching Assistant for CS 598: Advanced Computer Vision (Prof. Yuxiong Wang)
- Teaching Assistant for CS 598: Machine Perception (Prof. Shenlong Wang)
- Teaching Assistant for CS 416: Data Visualization (Prof. John Hart)
- Teaching Assistant for AI4ALL: AI for underrepresented minorities (Prof. Hannah Lee)

Google LLC, Software Engineering Intern, Mountain View, CA — Jun 2019 – Aug 2019

- Created an Arcata table using Flume and maintained by ZugZug (C++).
- Created a Flume pipeline using HydraulicPress to add a column to Youtube VideoCorpus (C++). Maintained through a borgcron job.
- Fixed claim dispute stale read bug (python).
- Aided in database deprecation (java).

Google LLC, Software Engineering Intern, Mountain View, CA — May 2018 – Aug 2018

- Worked on improving indoor location accuracy for Android devices. In particular this involved working on sensor fusion, signal processing, and clustering to improve a SLAM based WiFi mapping system with a machine learning pipeline. First built an initial framework in C++ aimed at generating labeled training data from un-labled crowd-sourced data, followed by a machine learning TFX based model to make location predictions.

Bloomberg LP, Software Engineering Intern, Princeton, NJ — May 2017 – Aug 2017

- Researched methods in document classification and then built an automated machine learning platform in Python. In particular the platform automates the procedure of pre-processing text, choosing and training a classification algorithm (model), and finally outputting results (filtered for high precision) based on an ensemble of uncorrelated methods. Implemented various approaches such as lemmatization, named entity recognition, word embeddings, LDA, SVM, LSTM, and more.

Linear Algebra Grader, Rutgers University, New Brunswick, NJ — Jan 2017 – May 2017

Teletronics Technology Corporation, Engineering Intern, Newtown, PA — May 2016 – Aug 2016

- Built a simulator for an MACQ (and other devices) in C to encode and send packetized data over a network at high frequencies.
- Wrote a Wireshark plugin in Lua to decode DAR network packets.

MENTORING & ACTIVITIES

- A2E, Elementary School Tutor — 2016 – 2017
- Rutgers Chess Team, 1^{st} board — 2015 – 2019
- Rutgers Intramural Soccer — 2015 – 2017
- School-Plus Princeton Chess and Math Teacher — 2014 – 2018

SKILLS

- Languages: (Fluent) English, Hebrew; (Proficient) French
- Programming Languages: Python, C++, Java, C, LaTeX, Lua
- Tools: ROS, Gazebo, TFX, Arduino, Raspberry PI

PROJECTS

- Class project for Learning Based Robotics (with James Motes and Felipe Arias): we studied methods for clustering image based robot states (where a good distance metric is unknown) in the low dimensional latent space produced by a variational autoencoder. Then used these clusters as states in motion planning, where visitation statistics served as an heuristic for determining good subgoals in the environment.
- Class project for Computer Vision (with Gao Tang): we studied the representations learned by classic vision models trained on ImageNet. We studied which invariances exist in different architectures and layers (such as image rotation or patch occlusion), measured how much information is retained by each layer of the model (answer: a lot), and how well various layers and architectures transfer to new problems.
- Class project for Statistical Reinforcement Learning: recreated the results from the paper "State abstraction as compression in apprenticeship learning" by Abel et al. 2019. Notably found a mistake in the main theorem statement, rendering it false, which was then altered and reproved with a new technique.
- Class project for Machine Learning: did location based crime forecasting using an RNN and KDE. Trained using Portland crime data supplied by NIJ with additional features such as weather data supplied by NOAA.
- Class project for Natural Language Processing: NYTimes article popularity prediction using sentiment analysis with data supplied by popularity API.
- Research with Kostas Bekris: researched methods for finding sparse, compact representations of randomized road maps for path planning using self-organizing map (SOM) principles.

PUBLICATIONS

Discrete State-Action Abstraction via the Successor Representation, Amnon Attali, Pedro Cisneros-Velarde, Marco Morales, Nancy M. Amato. International Conference on Learning Representations (ICLR 2023). In Submission.

Evaluating Guiding Spaces for Motion Planning, Amnon Attali, Stav Ashur, Isaac B. Love, Courtney McBeth, James Motes, Diane Uwacu, Marco Morales, Nancy M. Amato. Workshop on Evaluating Motion Planning Performance, IEEE International Conference on Intelligent Robots and Systems (IROS 2022, Kyoto, Japan).

This doesn't fascinate me, I'm fascinated by this: Subjects are experiencers in psychological verb use, Noa Attali, Amnon Attali, Anne Therese Frederiksen. Linguistic Society of America, 97th Annual Meeting, 2023.