


DAVID O NAHMIAS

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RESEARCH INTERESTS

My research interests are broadly in machine learning for signal and image processing with biomedical applications, particularly for upper limb prosthetics.

EDUCATION

University of Maryland-College Park

College Park, MD

PH.D.(C) ELECTRICAL AND COMPUTER ENGINEERING

Expected: May 2020

M.S. ELECTRICAL AND COMPUTER ENGINEERING

Conferred: Dec. 2018

- Coursework: Statistical Pattern Recognition; Neural Modeling; Advanced Numerical Optimization; Image Understanding; Harmonic Analysis; Selected Topics in Analysis: Wavelets, Time-Frequency Analysis, and Frames; Advanced Digital Signal Processing; Random Processes in Communication and Control; Information Theory; Optimal Control; Embedded Systems; Intellectual Property Seminar; Microelectronics Seminar.
Audited: Neural Basis of Human Movement; Estimation and Detection Theory; Unsupervised Learning; Mathematical Methods in Machine Learning; Computational Linguistics I.
- Clear pass on written and oral PhD qualifying exams.
- Candidacy proposal submitted and exam passed, June 2018.

Swarthmore College

Swarthmore, PA

B.S. ENGINEERING (EMPHASES: ELECTRICAL ENGINEERING AND ROBOTICS)

Conferred: June 2014

B.A. MATHEMATICS (EMPHASIS: STATISTICS)

Conferred: June 2014

- Engineering Design Thesis: Electromyography Analysis and Recognition for Human Device Interface.
- Mathematics Thesis: Development and Applications of Wavelets in Signal Processing.

WORK & RESEARCH EXPERIENCE

FDA (U.S. Food and Drug Administration)

White Oak, MD

ORISE (OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION) FELLOW

09/'16 – Present

- Research fellow in the Human-Device Interaction (HDI) lab in the Division of Biomedical Physics (DBP) under the Office of Science and Engineering Laboratories (OSEL) within the Center for Devices and Radiological Health (CDRH).
- Conduct research and analyses on clinical trials data from electroencephalography, electromyography and motion capture along with other biosensors for evaluation and design of upper limb prosthetics.

University of Maryland-College Park: School of Public Health

College Park, MD

G.A. (GRADUATE ASSISTANT)

09/'15 – 08/'16

- Manage and support the School of Public Health's technology infrastructure.
- Support and troubleshoot computer hardware, software, servers, networking, virtualization, mobile/tablet computing, cloud resources, database, and enterprise systems.

Epic Systems Corporation

Madison, WI

SERVER SYSTEMS ENGINEER

08/'14 – 08/'15

- Unix database administrator and Caché system manager.
- Manage Epic's database system, via InterSystem's Caché database, both through development and implementation of database server systems for new Epic customers and support of existing implementations of Epic software at various health organizations.
- Implemented and managed infrastructure of a new deployment of Epic at regional hospital while advising on purchases and interfaces from server to application, network and other peripheral systems.

NIST (National Institute of Standards and Technology)

Gaithersburg, MD

SURF (SUMMER UNDERGRADUATE RESEARCH FELLOWSHIP) RECIPIENT

05/'13 – 08/'13

- Done in the Intelligent Systems Division of the Engineering Lab (E.L.) at NIST. Managed a full independent project on AGV (Autonomously Guided Vehicle) obstacle detection and avoidance.
- Designed and constructed mechanical system to move obstacles with programmable displacement and velocity. Furthered AGV's sensing ability and testing procedures for industry standards.

Swarthmore College: I.T.S. (Information Technology Services)

Swarthmore, PA

SEED (SUMMER EDUCATIONAL E-PROJECT DEVELOPMENT) INTERN

05/'12 – 08/'12

- Software engineering position that demanded learning new languages and software packages as each project was developed in a collaborative environment.
- Developed websites for psychology experiments using JavaScript and libraries such as jQuery and Raphaël along with Google analytics. Created assignments and solutions that became the foundation of WeBWorK assignments for introductory math courses at Swarthmore.

Swarthmore College: Engineering Department

Swarthmore, PA

T.A. (TEACHING ASSISTANT)

01/'12 – 06/'14

- Led problem sessions for students to assist with weekly homeworks, tutored students one-on-one as needed, guided review sessions for exams and grade homework assignments.
- Electrical Circuit Analysis (Fall 2012, Fall 2013)
- Linear Systems Analysis (Spring 2013)
- Experimentation for Engineering Design (Spring 2013, Spring 2014)
- Control Theory and Design (Spring 2014)

Swarthmore College: Psychology Department

Swarthmore, PA

RESEARCHER

09/'11 – 06/'14

- Independently designed and conducted eye-tracking experiments that determined bilinguals represent novel, code-switched, sentence structures in the brain as valid abstract sentence structures.
- Presented at the CUNY Conference on Human Sentence Processing March 2012 as the only undergraduate presenting. Presented at the Association for Psychological Science (APS) convention May 2013. Currently analyzing further results and intend to co-publish findings.

SKILLS, CERTIFICATES, AWARDS AND EXTRAS

Computer Skills

- Programming Languages: C, Python, M/MUMPS, HTML/CSS, JavaScript, MATLAB, Mathematica, R, Verilog.
- Software Packages: OpenCV, Caché, L^AT_EX, LabVIEW, TI's CCS & RTOS, GPU programming via CUDA, Microsoft Office Suite (Word, Excel, PowerPoint, OneNote), Adobe (Photoshop, Illustrator), EXBuilder, EyeLink II, Audacity, VirtualDJ.
- Operating Systems: Windows OS, Windows Server, OS X, RHEL, AIX (IBM), HP-UX & other Unix platforms.
- ARM Processors: TI's BeagleBone Black, Raspberry Pi & Arduino; Use of I2C and SPI for GPIOs from A/D converters and other sensors.

Languages (non-programming)

- Fluent in English, French & Moroccan Arabic.
- Proficient in Modern Standard Arabic & Hebrew.

Selected Certificates

- Ham Radio License, Call Sign: KB3JHA.
- Dentsply Complete Denture certificate.
- NYSCA certified for Volleyball.
- Machine shop trained by NIST.
- Linux Professional Institute 101 Exam, score 700/800 (500/800 needed).
- Red Hat Enterprise Linux (RHEL) 6 trained.
- Caché System Manager certified by Epic.

Selected Awards

- Recipient of a ORISE (Oak Ridge Institute for Science and Education) graduate research fellowship to conduct research at the FDA beginning fall 2016 for ECE PhD program at UMD.
- Recipient of a Joshua Lippincott Fellowship in 2015, for graduate program at the University of Maryland-College Park.
- Recipient of The Albert Vollmecke Engineering Award for 2014, awarded upon graduation.
- Nominated and elected as an associate member of Sigma Xi, Scientific Research Honors Society, since 2012.
- Certificate of Merit from State of Maryland, 2010.
- College Board AP Scholar, 2010.

Selected Extracurriculars

- President of Electrical and Computer Engineering Graduate Student Association at University of Maryland.
- President of Swarthmore Society of Engineers.
- Volleyball, captain of collegiate team at Swarthmore College and member of club team at University of Maryland.

- Music development via software and DJ-ing events.
- Wood-working and carving.

SELECTED PUBLICATIONS AND TALKS

- [1] **Nahmias, D.**, Kontson, K. & Civillico, E. (November 2017) *Learning EEG: Identification of novel electroencephalogram classifications and variability of baseline features in a large clinical dataset*. International Symposium on Wearable and Rehabilitation Robotics (WeRob2017). Houston, TX.
- [2] **Nahmias, D.** (2014) *Electromyography Analysis and Recognition for Human Device Interface*. Engineering design senior thesis. <http://hdl.handle.net/10066/14256>.
- [3] **Nahmias, D.** (2014) *Development and Applications of Wavelets in Signal Processing*. Mathematics senior paper. [See site for report](#).
- [4] **Nahmias, D.** (April 2015) *SRT51: Disaster Recovery Panel*. Led Systems Round-Table (SRT), part of eXpert Group Meeting (XGM), presentation at Epic. Verona, WI.
- [5] **Nahmias, D.** (May 2014) *Electromyography Analysis and Recognition for Human Device Interface*. 2014 Swarthmore Agora Talks. Swarthmore, PA.
- [6] **Nahmias, D.**, Thothathiri, M. & Grodner, D. (November 2013) *Online processing of multilingual (code-switched) sentences*. Poster presentation at Sigma Xi Student Research Poster Session. Swarthmore, PA.
- [7] **Nahmias, D.** (August 2013) *Design and construction of Computer Controlled Test Piece/Mannequin Mover (CCTPMM) for autonomous vehicles*. NIST SURF research talk and presentation. Gaithersburg, MD. Grant N°70NANB13H067.
- [8] Thothathiri, M., **Nahmias, D.** & Grodner, D. (May 2013) *Online processing of multilingual (code-switched) sentences*. Poster presentation at Association for Psychological Science (APS) Conference. Washington, D.C..
- [9] **Nahmias, D.**, Thothathiri, M. & Grodner, D. (November 2012) *Priming during real-time comprehension of code-switched utterances*. Poster presentation at Sigma Xi Student Research Poster Session. Swarthmore, PA.
- [10] Thothathiri, M., Grodner, D., **Nahmias D.** & Puentes, M. (March 2012) *Priming during real-time comprehension of code-switched utterances*. Poster presentation at CUNY Conference on Human Sentence Processing. New York, NY.