Michael Dushkoff

PERSONAL DETAILS

Address	7078 Cole Rd. Colden, NY 14033, USA
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E-Mail	mad1841@rit.edu
Language	English (Native)

ACADEMIC QUALIFICATIONS

Ph.D. Computer Science (In Progress) – 2029
University of Oregon
Advisors: Dr. Thanh Nguyen, Dr. Allen Malony
Current GPA: 4.00

M.S. Computer Engineering 2016
Rochester Institute of Technology
Advisors: Dr. Raymond Ptucha, Dr. Andreas Savakis, Dr. Nathan Cahill
Thesis Title: "A Temporally Coherent Neural Algorithm for Artistic Style Transfer"
Honors: *magna cum laude* (GPA: 3.89)

B.S. Computer Engineering 2016
Rochester Institute of Technology
Honors: *magna cum laude* (GPA: 3.80)

SKILLS

Programming	C, C++, CUDA, VHDL, Python, MATLAB, Lua, Bash, Java, ARM Assembly, J2EE Webservices, Javascript, PHP
Hardware	Xilinx FPGA, MSP430, ARM Cortex MCUs, Arduino, Atmel AVR, Raspberry Pi, ARM mbed, HCS12, ESP8266 Xilinx ISE, OrCAD, Eagle PCB, GSI Gemini APU
Skills	Machine Intelligence, Deep Learning, Computer Vision, PCB Design, Rapid Prototying, FFF/SLA 3D Printing, VLSI Design, LaTeX, GNU/Linux
Machine Learning Frameworks	PyTorch, TensorFlow, scikit-learn, Caffe, Torch7

PROFESSIONAL EXPERIENCE

Senior Partner Aug 2018 - Present
RootFœult LLC

- Researched and developed novel data mining and clustering techniques.
- Designed and modeled risk strategies associated with personally identifiable information for Fortune 500 companies to mitigate data protection and privacy.
- Worked with several MGM Resorts International admins to uncover data targets and developed a statistical risk mitigation model to prioritize findings for GDPR/CCPA compliance.
- Designed a full stack Machine Learning risk modeling platform using Node.js and Python/PyTorch for the University of Miami to identify personalized treatments for Myeloma.
- Designed and implemented a cross-platform desktop application using Electron.js, Vue.js, and PyTorch for real time whole slide pathology and cancer detection.

Senior Software Engineer Mar 2017 - Jul 2018
Pattern Computer Inc.

- Contributed to patented works in machine learning and data mining.
- Architected and implemented key components of an intelligent proprietary pattern discovery hardware-software platform using C, C++, Lua, and Python/PyTorch including custom Linux distro.
- Worked on a team to actively research topics in the area of pattern discovery and machine intelligence, developing several novel pattern discovery methods.
- Identified several new potential metabolic pathways for the biological interpretation of irritable bowel syndrome.

Deep Learning Researcher Jun 2014 - Sep 2016
RIT Machine Intelligence Lab

- Pioneered bleeding-edge research tools using the Torch7 Deep Learning Framework.
- Hosted presentations to other researchers and professionals to clarify rapidly-changing deep learning concepts.
- Actively contributed to various interdisciplinary projects with other researchers including developing custom hardware for an autonomous wheelchair platform to test computer vision, autonomous navigation, and speech recognition algorithms.
- Published significant scientific findings in three separate journals including ICPR, Electronic Imaging, and WNYISPW.

Software Engineer Jul 2012 - Aug 2013
XLNT Software Solutions

- Engineered a front-end Google Web Toolkit-based user interface for existing J2EE web service applications.
- Organized and tracked development changes through SVN.
- Worked in tight correspondence with team members to significantly improve existing application functionality.

PATENTS

- **Riddle M. and Dushkoff M.: US Patent No. 11,868,331** 2024
- **Jaffrey M. and Dushkoff M.: US Patent No. 11,392,621** 2022

PUBLICATIONS

[1] Marc Jaffrey and **Michael Dushkoff**. Derivation of analytic formulas for the sample moments of the sample correlation over permutations of data. *arXiv preprint*, 2021.

[2] Larry Smarr, Marc Jaffrey, **Michael Dushkoff**, Brynn Taylor, Pilar Ackerman, Mehrdad Yezdani, and Weizhong Li. Extracting insights on the dynamic health-disease transition in the human gut. *Pattern Computer Inc. whitepaper*, 2018.

[3] **M. Dushkoff**, R. McLaughlin, and R. Ptucha. A temporally coherent neural algorithm for artistic style transfer. *International Conference on Pattern Recognition*, 2016.

[4] **M. Dushkoff** and R. Ptucha. Adaptive activation functions for deep networks. *Electronic Imaging, Computational Imaging*, XIV:1–5, 2016.

[5] K. Wieszchowski, A. Bhatt, **M. Dushkoff**, S. Echefu, M. Shoaib, and R. Ptucha. Giving independence back to the elderly and physically disabled. In *IEEE Western New York Image and Signal Processing Workshop*, pages 1–5, 2015.

TEACHING

Mathematics Tutor 2015 - 2016
RIT Department of Mathematics

- Assisted Students with calculus, statistics, physics, and optimization related problems.
- Responsibly managed a safe and accepting environment that encouraged students to ask questions.

Teaching Assistant 2014 - 2015
RIT Computer Engineering Department

- Taught low-level assembly language and C concepts.
- Effectively supervised laboratory exercises involving various hardware platforms utilizing Raspberry Pi devices, Freescale KL25Z boards, and laboratory equipment.

Engineering Tutor 2012 - 2015
RIT Kate Gleason College of Engineering

- Educated and addressed student concerns regarding multiple engineering subjects including computer engineering, electrical engineering, computer science, and mathematics.
- Cooperated with other tutors to answer questions that overlapped areas of expertise.

First Year Mentor 2013
RIT Computer Engineering Department

- Advised multiple groups of freshman students to successfully explore principles of electronics prototyping.
- Guided students through the development of an autonomous line-following car.
- Devised and constructed race tracks, timing mechanisms, and a mechanical release mechanism for autonomous line-following car races.

PRESENTATIONS

- A. Bhatt, **M. Dushkoff**, S. Echefu, M. Shoaib, K. Wieszchowski, R.W. Ptucha. "Voice Activated Wheelchair", *Effective Access Technology Conference.* 2015

HONORS AND AWARDS

- 2^{nd} **Place in University of Oregon Winter Hackathon** 2025
- **Tau Beta Pi Engineering Honor Society Member** 2015
- 1^{st} **Place in ARM University Design Competition** 2014
- **Kate Gleason Alumni Endowed Scholarship** 2014
- **Award for Excellence in Department Service - RIT CE Department** 2013
- **RIT Presidential Scholarship Award** 2011
- **RIT Named Scholarship** 2011

SERVICE

ARM Developer Day Volunteer 2014 - 2016
RIT Computer Engineering Department

- Volunteered in distributing materials and organizing demonstrations for ARM development activities.