

# Alex Gaudio

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## EDUCATION

### Carnegie Mellon University

**Ph.D. Candidate in Electrical Computer Engineering** Aug 2018 – current

- Advisors: Professor Asim Smailagic and Professor Aurelio Campilho
- Thesis: Explainable Deep Learning and Pre-processing Methods for Medical Image Analysis

### University of Porto, Faculdade de Engenharia

**Ph.D. Candidate in Electrical Computer Engineering** Aug 2018 – current

- Advisors: Professor Aurelio Campilho and Professor Asim Smailagic
- Fellowship awarded through the CMU Portugal Program for Dual Ph.D. Degrees

### Carnegie Mellon University

**Masters in Electrical Computer Engineering** Aug 2018 – current

- Advisors: Professor Asim Smailagic and Professor Aurelio Campilho

### Bard College

**Bachelor of Arts in Music** Aug 2006 – May 2010

- Award: Recipient of the Larry McLeod Award in Jazz.
- Thesis: Connecting With Others Through Jazz: Performances and All-Original Composition

## JOURNAL PUBLICATIONS (PEER-REVIEWED)

\* indicates equal contributions † indicates corresponding author(s)

- [1] A. Smailagic<sup>\*†</sup>, P. Costa<sup>\*</sup>, **A. Gaudio<sup>\*</sup>**, K. Khandelwal, M. Mirshekari, J. Fagert, D. Walawalkar, S. Xu, A. Galdran, P. Zhang, A. Campilho, and H. Y. Noh. “O-MedAL: Online active deep learning for medical image analysis”. In: *WIREs Data Mining and Knowledge Discovery* 10.4 (Jan. 2020). DOI: 10.1002/widm.1353. URL: <https://doi.org/10.1002/widm.1353>.

## CONFERENCE PUBLICATIONS (PEER-REVIEWED)

- [2] **A. Gaudio<sup>\*†</sup>**, A. Smailagic, and A. Campilho. “Enhancement of Retinal Fundus Images via Pixel Color Amplification”. In: *Lecture Notes in Computer Science*. Springer International Publishing, 2020, pp. 299–312. DOI: 10.1007/978-3-030-50516-5\_26. URL: [https://doi.org/10.1007/978-3-030-50516-5\\_26](https://doi.org/10.1007/978-3-030-50516-5_26).
- [3] A. Smailagic<sup>\*</sup>, A. Sharan<sup>\*</sup>, P. Costa<sup>†</sup>, A. Galdran, **A. Gaudio**, and A. Campilho. “Learned Pre-processing for Automatic Diabetic Retinopathy Detection on Eye Fundus Images”. In: *Lecture Notes in Computer Science*. Springer International Publishing, 2019, pp. 362–368. DOI: 10.1007/978-3-030-27272-2\_32. URL: [https://doi.org/10.1007/978-3-030-27272-2\\_32](https://doi.org/10.1007/978-3-030-27272-2_32).
- [4] Q. Xiao<sup>\*</sup>, J. Zou<sup>\*</sup>, M. Yang, **A. Gaudio**, K. Kitani, A. Smailagic<sup>†</sup>, P. Costa, and M. Xu. “Improving Lesion Segmentation for Diabetic Retinopathy Using Adversarial Learning”. In: *Lecture Notes in Computer Science*. Springer International Publishing, 2019, pp. 333–344. DOI: 10.1007/978-3-030-27272-2\_29. URL: [https://doi.org/10.1007/978-3-030-27272-2\\_29](https://doi.org/10.1007/978-3-030-27272-2_29).

## PATENTS

- [5] **A. Gaudio<sup>\*</sup>** and G. I. Kestenbaum<sup>\*</sup>. *Physical asset recognition platform*. U.S. Patent No. 10803542. Oct. 2020.

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## INVITED TALKS

- [6] **A. Gaudio.** *Balancing Infrastructure with Optimization and Problem Formulation.* Invited Speaker. Cornell Tech Data Science Hackathon, 2015. URL: [https://www.youtube.com/watch?v=7FeKV46Us\\_0](https://www.youtube.com/watch?v=7FeKV46Us_0).
- [7] **A. Gaudio.** *Challenges in Optimizing Job Scheduling on Mesos.* Invited Speaker. The Linux Foundation, MesosCon, 2015. URL: [http://events17.linuxfoundation.org/sites/events/files/slides/Challenges%20in%20Optimizing%20Job%20Scheduling%20on%20Mesos\\_0.pdf](http://events17.linuxfoundation.org/sites/events/files/slides/Challenges%20in%20Optimizing%20Job%20Scheduling%20on%20Mesos_0.pdf).
- [8] **A. Gaudio.** *Tmux + IPython = Awesome.* Invited Speaker. PyGotham, 2011. URL: <http://pyvideo.org/pygotham-2011/pygotham-2011--tmux---ipython---awesome.html>.

## INDUSTRY EXPERIENCE

### NYC Makerspace: Co-Founder Feb 2017 – current

- A non-profit establishing makerspaces throughout New York City. We provide advanced resources and education freely to the public, where learning and innovation is a form of recreation.
- Forged partnerships with Columbia University, Columbia Teacher's College and NYC Parks and Recreation.
- Taught three 12-week courses on robotics, programming, mathematics and 3D modeling to high school seniors.
- Established Harlem's first makerspace, and brought over \$17,000 to the space.
- Honored as a Champion of Social Justice by the Wilson Major Morris Community Center in Jan. 2018.

### Columbia University, Creative Machines Lab (Prof. Hod Lipson)

- **Software Engineer: DARPA Transformative Design (TRADES) program**      **Nov 2017 – Jun 2018**
  - Mass-spring simulator for generative design of 3D models, an alternative to Finite Element Analysis.
- **Independent Research, advised by Prof. Hod Lipson**      **Dec 2016 – Jul 2017**
  - Multi-Agent Collaborative Reinforcement Learning simulator: MACL.

### BuildingLink: Data Scientist Nov 2016 – Jul 2018

- **ImageR:** Machine Learning and Vision to solve matching problems, such as to connect images of packages to building residents. I designed and implemented the production ready algorithms, then coordinated development and release of the mobile apps for iOS and Android. ImageR processes 50K packages a day, 18 million packages processed by Jan. 2021, launched May 2018. Awarded Patent: 10,803,542

### Alluvium: Senior Data Scientist, 1st employee Dec 2015 – May 2016

- Machine learning and IoT business that deploys intelligent autonomous agents close to sources of streaming data.

### Sailthru: Senior Data Scientist and Engineer Aug 2012 – Nov 2015

- Inc. 5000's 30<sup>th</sup> fastest-growing company in the US in 2013. Subsequently acquired in 2019.
- Founded data science team, hired my boss, VP of Data Science Jeremy Stanley and grew team from 1 to 4 full time employees. Promotion to "Senior" in 2014.
- Created and launched **Sightlines™** to predict user behavior, and architected a robust, fault tolerant and distributed data science platform.

### Adaptly: Developer Dec 2011 – Jul 2012

- Data science and big data engineering for Facebook advertising, subsequently acquired in 2018.

### Flat World Knowledge: Software Engineer, Backend Feb 2011 – Dec 2011

- Automated textbook publishing platform to produce low-cost, customizable textbooks for classrooms.

### Bard College: Systems Engineer Jul 2009 – Sep 2010

- In collaboration with REN-ISAC (Research & Education Networking Information Sharing & Analysis Center) and supervised by CTO Bill Terry, I built a darknet.