

ANDREA COGLIATI

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INTERESTS

Intelligent Signal Processing, Music Information Retrieval, Computer Audition, Machine Learning, Embedded Systems, High Performance Computing

EDUCATION

University of Rochester

Ph.D., Department of Electrical and Computer Engineering 2018

Thesis: *Toward a Human-Centric Automatic Piano Music Transcription System*

Advisor: Dr. Zhiyao Duan

M.S., Department of Electrical and Computer Engineering 2014

Scuola Normale Superiore, Pisa, Italy

Diploma in Mathematics 1997

Final grade: 70/70 cum laude

University of Pisa, Pisa, Italy

B.S. in Mathematics 1997

Thesis: *Global Optimization with Stochastic Methods in R^n*

Advisor: Dr. Franco Flandoli

Final grade: 110/110 cum laude

WORK EXPERIENCE

LighTopTech Corp.

September 2016 - Present

Software and Systems Engineer

- Developed a control system for a Micro-Electro-Mechanical System (MEMS) device
- Designed a pre-shaped open-loop driving signal based on a mathematical model of the device
- Developed the software for a hardware control board based on the TI Delfino microcontroller
- Supervised the design of a control board based on the Microchip PIC32 microcontroller and developed the related software
- Designed a refraction correction method for non-telecentric volumetric images
- Supervised interns for Research Experience for Undergraduates funded by NSF

University of Rochester

September 2013 - December 2014

Adjunct Instructor

- CSC171 – The Science of Computer Programming (Spring 2014)
- CSC161 – The Art of Computer Programming (Fall 2013, Summer 2014, Fall 2014)

University of Rochester

February 2012 - August 2012

Visiting Research Associate

- Supervisor: Dr. Jannick Rolland
- Updated and maintained a large codebase (800+ KLOC) of an optical design and Visualization platform for freeform optical instrumentation (Eikonal+) developed in Fortran 77

Freelance Trainer and Consultant

August 2007 - August 2012

- Designed and taught classes for Apple iOS devices (iPhone and iPad)
- Taught Apple Official Classes with an Apple Certified Training Partner
- Taught CompTIA A+, Network+ & Security+ classes

Dollos Srl (Milan, Italy)

February 2004 - December 2011

Owner

- Information Security training and consulting
- Developed an original curriculum on secure application designing and implementation for programmers and software architects
- Worked with major financial institutions, government agencies and companies in Europe
- Public speaker at international conferences

Gotech Srl (Milan, Italy)

January 2002 - January 2004

Founder and Chief Technology Officer

- Responsible for designing and developing the Managed Security Services line of business
- Information Security consultant

Algol Spa (Milan, Italy)

September 2000 - December 2001

New Business Development Manager

- Responsible for budgeting, staffing and managing Microsoft, Extreme Networks, Citrix and CA line of business
- Trainer on operating systems, networking and storage technologies
- Assisted AlgolCollege Director in budgeting, staffing and managing AlgolCollege Business Unit

Mondadori Informatica Education Srl (Milan, Italy)

January 1999 - August 2000

Trainer

- Trainer on Windows NT/2000 and BackOffice products
- Speaker at lectures and technical events
- Windows Professional Conference 1999 content chair
- Adviser for the infrastructure of the Information System, in particular for security and networking topics
- Responsible for developing the new “Cisco Training” line of business

Mondadori Informatica Education Srl (Milan, Italy)

March 1998 - December 1998

Department Manager

- Supervised the training department of the new branch in downtown Milan

Ultimobyte Srl (Milan, Italy)

August 1992 - February 1998

Department Manager

- Supervised the technical support department for McAfee products

TEACHING

Courses Designed

- CSC171 – The Science of Computer Programming, Undergrad level Spring 2014
Instructor, University of Rochester
Introductory class to programming for Computer Science majors, with focus on the Java language

- CSC161 – The Art of Computer Programming, Undergrad level Fall 2013, Summer 2014, Fall 2014
Instructor, University of Rochester
Introductory class to programming for non-Computer Science majors, with focus on the Python language

Additional Teaching

- ECE 477 – Computer Audition, Grad level Fall 2017
Guest Lecturer, University of Rochester
- Music and Math, Pre-college level Summer 2017
Teaching Assistant, Upward Bound Program, University of Rochester
- ECE 473 – Computation Models of Music, Grad level Spring 2014
Guest Lecturer, University of Rochester
- ECE 114 – Introduction to Computers and Programming, Undergrad level Spring 2013
Teaching Assistant, University of Rochester
- ECE 101 – Introduction to ECE, Undergrad level Fall 2012
Teaching Assistant, University of Rochester

Student Advising

- Arlen Fan, undergraduate student, University of Rochester, and Andrew V. Smith, undergraduate student, University of Central Florida Summer 2017
Project: Interactive Music Transcription
- David Fink, undergraduate student, University of Rochester Spring and Fall 2016
Project: GPU/CUDA implementation of the SParse Optimization Research COde (SPORCO) library
- Hanqing Wen, ECE master’s student, University of Rochester Spring and Fall 2015
Project: Long Short-Term Memory network for onset detection

PUBLICATIONS

Journal Papers

- Patrice Tankam, Jonathan Soh, Cristina Canavesi, Mara Lanis, Adam Hayes, **Andrea Cogliati**, Jannick P. Rolland, Sherrif F. Ibrahim. Gabor-Domain Optical Coherence Tomography to Aid in Mohs Resection of Basal Cell Carcinoma. *Journal of the American Academy of Dermatology*, 0190-9622, 2018.
- **Andrea Cogliati**, Zhiyao Duan, and Brendt Wohlberg. Piano transcription with convolutional sparse lateral inhibition. *IEEE Signal Processing Letters*, 24(4): 392–396, 2017.
- **Andrea Cogliati**, Zhiyao Duan, and Brendt Wohlberg. Context-dependent piano music transcription with convolutional sparse coding. *IEEE/ACM Transactions on Audio, Speech, and Language Processing*, 2016.
- **Andrea Cogliati**, Cristina Canavesi, Adam Hayes, Patrice Tankam, Virgil-Florin Duma, Anand Santhanam, Kevin P. Thompson, Jannick P. Rolland. MEMS-based handheld scanning probe with pre-shaped input signals for distortion-free images in Gabor-domain optical coherence microscopy. *Optics Express*, 24(12): 13365–13374, 2016.

Peer-Reviewed Conference Papers

- Johnathan M. Soh, Patrice Tankam, Mara Lanis, Adam Hayes, Cristina Canavesi, **Andrea Cogliati**, Jannick P. Rolland, and Sheriff F. Ibrahim. Gabor-Domain Optical Coherence Microscopy: An in vivo Aid for Margin Delineation in Mohs Surgery, *American College of Mohs Surgery 50th Annual Meeting*, Chicago, IL, 3-6 May, 2018.

- **Andrea Cogliati** and Zhiyao Duan. A metric for music notation transcription accuracy. *Proc. of International Society for Music Information Retrieval (ISMIR)*, 2017.
- **Andrea Cogliati**, David Temperley, and Zhiyao Duan. Transcribing human piano performances into music notation. *Proc. of International Society for Music Information Retrieval (ISMIR)*, 2016.
- **Andrea Cogliati**, Zhiyao Duan, and Brendt Wohlberg. Piano music transcription with fast convolutional sparse coding. In *Proc. of IEEE International Workshop on Machine Learning for Signal Processing (MLSP)*, pages 1–6. IEEE, 9 2015.
- **Andrea Cogliati** and Zhiyao Duan. Piano music transcription modeling note temporal evolution. In *Proc. of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, pages 429–433, Brisbane, Australia, 4 2015.

Patents

- **Andrea Cogliati**, Zhiyao Duan, Brendt Wohlberg. “Context-dependent piano music transcription with convolutional sparse coding.” U.S. Patent 9,779,706 B2, issued October 3, 2017.

HONORS AND AWARDS

NIH I-Corps Principal Investigator	May. 2018
Young Investigator Award at the American Heart Association Scientific Sessions 2017	Nov. 2017
NSF INCLUDES Upstate NY Alliance <i>Upward Bound</i> grant	Jul. 2017
Acoustical Society of America Student Council Travel Award	Nov. 2016
NSF I-Corps Site grant (Entrepreneurial Lead), University of Rochester	Fall 2016
ISMIR2016 ThinkTank grant	Aug. 2016
Best code award at HAMR (Hacking Audio and Music Research) hackathon, Cornell	Feb. 2015
University of Rochester Dean of Graduate Studies Travel Grant	Oct. 2014
Most innovative startup award grant by Province of Milan and European Union	2003

ACADEMIC SERVICE

Reviewer for journals

- APSIPA Transactions on Signal and Information Processing 2018–present
- Journal of the Audio Engineering Society 2018–present
- IEEE Signal Processing Letters 2018–present
- Journal of Mathematics and Music 2017–present
- IEEE Transactions on Multimedia 2016–present
- IEEE Transactions on Audio, Speech and Language Processing 2015–present
- Elsevier Signal Processing 2015–present

Reviewer for conferences

- ISMIR (International Society for Music Information Retrieval) 2014–present

Chairing

- Chair of the HAMR (Hacking Audio and Music Research) hackathon event Feb. 2017

Mentoring

- Mentor for Women in Music Information Retrieval (WiMIR) 2016–present

PROFESSIONAL MEMBERSHIPS AND SERVICE

IEEE Signal Processing Society	2014–present
AES (Audio Engineering Society)	2012–present
Rochester Security Summit	2011
· <i>Infrastructure Security Track Chair</i>	
· <i>Application Security Track Chair</i>	
Rochester Security Summit	2010
· <i>Technical Track Chair</i>	
Rochester Security Summit	2009
· <i>Application Security Track Chair</i>	
Rochester Information Security Systems Security Association (ISSA)	2009–2012
· <i>Vice-President Elect 2012</i>	
· <i>Communication Officer 2009–2011</i>	
Rochester Open Web Application Security Project (OWASP)	2010–2011
· <i>President</i>	