Andy Wiens

Curriculum Vitae – January 2020

Contact Information

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Education

• Ph.D Computer Science, Cornell University	4.0	Current
• M.S. Electrical Engineering, Georgia Tech	3.8	2015
• B.S. Electrical Engineering, Washington University	3.77	2013
• B.S. Computer Engineering, Washington University	3.77	2013

Current Position

Oasis Digital Solutions — Summer 2017 – Present
Software Developer

Technologies Learned: Angular 2-9, TypeScript, Angular Material, Node.js, Nrwl Nx, Bazel, Google Cloud Platform, Linux (Ubuntu 18.04 is my daily-driver OS)

Projects for clients:

- Lam Research Corp (Fortune 500; 2 projects completed)
  - Project 2 (Angular 6/7/8 and Node.js; 1 year)
    231 commits merged into develop out of 918
    = **27%** of all commits (**#2 committer** by volume)

```
Commits  Author
=======  ======
    251  Joe
    231  Andy (me)
    159  Sam
     54  Bob
    ...  ...
```

  - Project 1 (Angular 5 and Node.js; 6 months)
    53 commits merged into develop out of 282
    = **19%** of all commits (**#3 committer** by volume)

```
Commits  Author
=======  ======
     88  Bill
     72  Nick
     53  Andy (me)
     35  Sarah
     22  Emily
    ...  ...
```

- Pricewaterhouse Coopers (PwC)
  - Fortune 500; 1 project; 6 months

    - Angular 5, Node.js, MongoDB
- Elekta Corp (Current project; 3 months)

```
Commits  Author
=======  ======
      7  Dan
      4  Andy (me)
```

- Aggio.io (Completed; 3 weeks; All pair/mob programming)

```
Commits  Author
=======  ======
     41  Jon
     34  Pat
     22  Nick
      4  Andy (me)
```

Angular Boot Camps Taught (Primary Instructor):

Date	# Days (8 hrs)	Class type	# Students
10-07-2019	4	Private online	12
10-28-2019	3	Public online	31
04-15-2019	3	Private in-person	9
09-04-2019	3	Public online	11
01-02-2019	3	Public online	2
10-01-2019	4	Private in-person	13

Angular Boot Camps Co-taught:

Date	# Days (8 hrs)	Class type	# Students
09-06-2017	3	Public in-person	21
11-06-2017	3	Public in-person	24
12-11-2017	3	Public online	25
01-22-2018	3	Public in-person	10
04-23-2018	3	Public in-person	19
08-21-2018	3	Private in-person	16
02-11-2019	3	Private in-person	15

Technical Blog Posts Written:

- “How I Learned Angular” (9/16/17)
- “Angular Runtime Performance Guide” (9/19/17)
    - Featured on the Google Angular blog
- “Loopback 3, TypeScript, and Custom Connectors” (1/5/18)

Conference Talks Given:

- Angular Drag-and-Drop at WindyCity DevFest 2019
- Angular Drag-and-Drop at St. Louis DevFest 2019
- Machine Learning + Angular at COMO DevFest 2019
- Full Stack Angular with NestJS at St. Louis DevFest 2019

Meetup Talks Given:

- “Rapid Declarative REST APIs for Angular Apps” (10/2017)
- TensorFlow.js + Angular at St. Louis Angular Lunch (3/2019)
- Angular Reactive Forms at St. Louis Angular (2/2019)
- Angular Drag-and-Drop at Porto Google Dev Group (2/2019)

Conferences Attended:

- Bazelcon 2019 (Sunnyvale)
- WindyCity DevFest 2019 (Chicago)
- St. Louis DevFest 2019 [Both]
- DevUp 2018 (St. Louis)
- Strange Loop 2017 (St. Louis)

Certifications:

- Google Cloud Platform (GCP) Professional Data Engineer Certification (Passed Exam 11/2019)

Training Completed:

- Google Cloud OnBoard St. Louis (5/9/18)
- Online courses for Google Cloud Platform

Academic Appointments

Presidential Life Sciences Fellow — Fall 2016 – Spring 2017
Cornell University Computer Science PhD Program
Courses:

- CS 6784 (Advanced Topics in Machine Learning)
- CS 5780 (Machine Learning)
- CS 5830 (Cryptography)

Industry Experience

Two Summer Internships at Intel Corporation — 2011 - 2012
Manager: Sean Baartmans, Atom & SoC Development Group
Hillsboro, OR

- Wrote code for software tools currently in used by Intel and HP engineers for post-silicon validation of Intel Atom processors
- Learned C++ and C#
- Gave two PPT presentations to the business group
- Created poster and PPT slides on my work for a conference

Database Administrator — 2015
NASA White Sands Test Facility/Jacobs Technology
Manager: Kyle M. Sparks, Oxygen Group Lead Mechanical Engineer

- Extended an existing ASP.NET application with new features
- Built web front-end to a SQL database for the oxygen test group
- One week on-site training at Las Cruces, NM
- Worked remotely from Atlanta during M.S. at Georgia Tech
- Held semi-weekly teleconferences on progress

Prior Academic Appointments

Graduate Teaching Assistant — Spring 2014
ECE 3025B (Undergraduate Electromagnetics)
Advisor: John Papapolymerou, Georgia Institute of Technology

- Graded homework assignments for ~50 students
- Gave two lectures in professor's absence
- Proctored the midterm exam
- Held weekly office hours
- Held help sessions before midterms and finals

Graduate Teaching Assistant — Fall 2013
ECE 2026 (Undergraduate Digital Signal Processing)
Advisor: Biing-Hwang Juang, Georgia Institute of Technology

- Led two lab sections, ~15-20 students each
- Assisted a third lab section
- Graded lab assignments for first two lab sections
- Graded homework for one class section, ~40 students
- Held office hours twice per week

Study Abroad: Electrical Engineering, Technion, Haifa, Israel — Summer 2010

Prior Research Experience

Undergraduate Research — 2010 - 2012
NASA Reduced Gravity Education Flight Program**,** Johnson Space Center

- Organized a five-student undergraduate team
- Collaborated with three NASA engineers and a USAF M.D.
- Designed and flew two research projects on zero-gravity airplane
- Co-authored two twenty-page research reports:
- *"Measuring Localized CO_2 in Microgravity"*
  NASA observed unusual symptoms of hypoxia in astronauts aboard ISS. Investigated whether CO_2 lingers near an astronaut's face between breaths. Our results did not suggest that diffusion occurs differently in a zero-gravity environment.
- *"Feedwater Supply Assembly for Spacesuit Cooling"*
  Apollo and Shuttle programs used space suits with bulky external backpacks. Explored a design concept for a smart, wearable water reservoir that could be integrated inside the space suit to increase astronaut mobility. Our study found significant challenges in realizing compact and wearable water reservoirs.

Undergraduate Research — Spring 2010
Advisor: Arye Nehorai, Washington University in St. Louis

- Designed an NI LabView VI to control a three-wheeled robot
- Presented a poster at an annual Undergraduate Research Symposium

Invention Disclosures

- Systems and Methods for Monitoring Central Heart Function from Peripherally Located Sensors, USPTO Provisional Patent — 2014

Journal Publications

- A. D. Wiens, A. Johnson, and O. T. Inan, "Wearable Sensing of Cardiac Timing Intervals from Cardiogenic Limb Vibration Signals," IEEE Sensors, 2016 Dec;17(5):1463-70. — 2016
- A. D. Wiens, A. Carek, and O. T. Inan, "Sternal Vibrations Reflect Hemodynamic Changes During Immersion: Underwater Ballistocardiography," J. Acoustical Society of America 137, 2315 (2015). — 2015
- A. Q. Javaid, A. D. Wiens, N. F. Fesmire, M. A. Weitnauer, and O. T. Inan, "Quantifying and Reducing Posture-Dependent Distortion in Ballistocardiogram Measurements," IEEE J Biomed Health Inform. 2015 Sep;19(5):1549-56. — 2015
  - **Featured article in July 2015 Monthly Highlights**
- A. D. Wiens and O. T. Inan, "Novel System Identification — 2015

Technique for Improved Wearable Hemodynamics Assessment," IEEE Trans Biomed Eng. 2015 May;62(5):1345-54.
    - **Featured article in May 2015 Monthly Highlights**

- A. D. Wiens, M. Etemadi, S. Roy, L. Klein, and O. T. Inan, "Towards Continuous, Non-Invasive Assessment of Ventricular Function and Hemodynamics: Wearable Ballistocardiography," IEEE J Biomed Health Inform. 2015 Jul;19(4):1435-42. — 2014

Invited Presentations

- A. Wiens, M. Etemadi, S. Roy, L. Klein, and O. T. Inan, "Wearable ballistocardiography: preliminary methods for mapping surface vibration measurements to whole body forces," 36th Annual IEEE Engineering in Medicine and Biology, Chicago, IL, August 2014. — 2014

Conference Publications & Presentations

- A. D. Wiens, S. Prahalad, and O. T. Inan, "VibroCV: A computer vision-based vibroarthrography platform with possible application to Juvenile idiopathic arthritis," 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), Orlando, FL, 2016. — 2016
- A. D. Wiens, A. Carek, and O. T. Inan, "Sternal Vibrations Reflect Hemodynamic Changes During Immersion: Underwater Ballistocardiography," 169th Meeting of the Acoustical Society of America, Pittsburgh, PA, 2015. — 2015
- A. D. Wiens, S. Hersek, and O. T. Inan, "Live Demonstration: Listen to your Body: The Sounds of Injury and Inflammation," IEEE Biomedical Circuits and Systems Conference (BioCAS), Atlanta, GA, 2015. — 2015
- A. D. Wiens and O. T. Inan, "Accelerometer Body Sensor Network Improves Systolic Time Interval Assessment with Wearable Ballistocardiography," 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), Milan, Italy, August 25-29, 2015. — 2015
- O. T. Inan and A. D. Wiens, "Early Findings Exploring the Possibility of Combining Ballistocardiogram and Plethysmographic Measures from the Hand," 36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS), Chicago, IL, 2014. — 2014

Academic Honors and Awards

- **Cornell Presidential Life Sciences Fellowship** — 2016 – 2017
- **NSF Fellowship Honorable Mention** — 2015
- **Best grade in the class, ECE 6360** (Taught by Dr. Madhavan Swaminathan, course based on Pozar's *Microwave Engineering*) — Spring 2014
- **President's Scholarship**, Georgia Institute of Technology — 2013 - 2016
- Outstanding Senior Award, School of Engineering & Applied Science, Washington University in St. Louis — 2013
- 2011 St. Louis Section of IEEE Certificate of Appreciation — 2011
- First Place IEEE Black Box Competition — 2010
- Dean's List, Washington University in St. Louis — 2009 - 2012

Funded Grants

- **Center for Pediatric Innovation Seed Grant** (**$50,000)** Children's Healthcare of Atlanta — 2015 - 2016

Authored

- Wrote the grant proposal which was funded.
- Collaborating with Dr. Sampath Prahalad, M.D., Associate Professor of Pediatrics and Director of Translational Research in Pediatric Rheumatology, Emory School of Medicine.
- Pilot study of joint sounds as biomarkers for juvenile inflammatory diseases.
- Currently designing battery-less wireless passive backscatter wearable microphone for children to wear.
- Currently designing contact-less joint angle measurement system using computer vision.
- Monthly all-hands team meetings.

Mentorship

Edward Vear, Sahithi Bonala, and Dominic Pattison — 2015 - 2016
B.S. Students, Electrical and Computer Engineering, Georgia Institute of Technology

- Year-long research project to target and listen to sounds of healthy and injured/diseased joints.
  - Project involves computer vision via Microsoft Kinect and audio via a highly-directional shotgun microphone.
- Guided undergraduates through writing a 4-page research proposal outlining their project.
- Training and assisting the students in Dr. Inan's lab.
- Holding weekly progress meetings and one-on-one meetings.
- Sharing slides during roundtables with other research groups.
- Formal presentation to large undergraduate audience at the end.

Ann Johnson — 2015 - 2016
B.S. Student, Biomedical Engineering, Georgia Institute of Technology

- Trained Ann for collecting ballistocardiograms on human subjects using 3x PCB Piezotronics wideband accelerometers, BIOPAC ECG/ICG modules, and a modified weighing scale.
- Collaborating with Ann to write a journal paper on our findings.
- Held weekly progress meetings.
- Helped Ann recruit and record subjects for the study.

Clément Julliard — Spring 2015
M.S. Student, Computer Science, Georgia Institute of Technology

- Led project that measured BCG signals with Google Glass.
- Extracted physiologic measurements using the accelerometer.
- Taught Clement how to process signals in MATLAB.
  Held monthly project meetings.

Forrest Fesmire — 2014-2015
B.S. Student, Electrical Engineering, Georgia Institute of Technology

- Worked with Forrest to develop piezoelectric pulse sensor.
- Trained Forrest on how to collect data for human subjects trials to study
  - The effects of body posture on the ballistocardiogram.
  - The feasibility of applying the ballistocardiogram as a surrogate for pre-ejection period in cuffless blood

pressure measurements.
- Discussed undergrad courses and applying to graduate school.

Andrew Carek 2014-2015
M.S. Student, Electrical Engineering, Georgia Institute of Technology
- Trained Andrew in the lab for collecting human subjects data.
- Collaborated in developing:
  - Piezoelectric sensor to measure radial arterial waveform
  - Equipment for cuff-less blood pressure pilot study.
  - Signal processing techniques to analyze the waveforms.
- Traveled to California with Andrew to set up pilot study at University of California-San Francisco School of Medicine.
- Advised Andrew about graduate courses and research topics.

Aaron Enten Fall 2014
Ph.D Student, Bioengineering, Georgia Institute of Technology
- Mentored Aaron Enten during his rotation in Dr. Inan's lab.
- Helped develop research plan to study biomechanics of the body with active mechanical stimulation via rotating eccentric mass.
- Helped debug problems with equipment and research methods.
- Met with Aaron monthly to advise and assess progress.

Outreach & Community Service

- Clinical Volunteering, Operating Room — Fall 2015
  Atlanta Medical Center (Level 1 Trauma)
  - Worked 30 hours
  - Change bed sheets
  - Transport patients to/from OR on beds/stretchers
  - Stock sterile fluids and replace/refill O_2 tanks
  - Surgeons observed:
    - Dr. Thomas Schoborg, M.D. (Urology)
    - Dr. Steven Kane, M.D. (Orthopedics)
    - Dr. Daniel Schlatterer, D.O. (Orthopedics)
- Volunteer reviewer of grant applications for 2015 Georgia Tech President's Undergraduate Research Awards (PURA). — 2015
- Treasurer and Webmaster of IEEE Engineering in Medicine and Biology Society (EMBS) at Georgia Institute of Technology — 2014-2015
  - Hosted Dr. May Wang IEEE-EMBS Distinguished Lecturer for the Atlanta metro area. — April 22, 2015
  - Organized GT Bioengineering Overview, research presentations by PhD students for the GT community. — Feb. 26, 2015
- Gave research presentation at the EMBS Bioengineering Overview to undergraduate and graduate students. — Feb. 2015
- Washington University IEEE Student Chapter Leadership Roles
  - Webmaster — 2010 - 2011
  - Secretary — 2011 - 2012
  - President — 2012 - 2013
- Organized two IEEE Black Box Competitions. — 2012 - 2013
  - Undergraduate teams across Missouri were given three hours to reverse-engineer a circuit.
  - Cash prizes were awarded for first - third place.

- Presented a poster to prospective students at the Society of Women Engineers Women in Engineering Day, Washington University. 2011
- Hands-on engineering games and NASA RGEFP video showing with inner-city middle school students at KIPP Inspire Academy, St. Louis. 2011