Leo Grady

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Overview

Technology leader bringing the latest machine learning, computer vision and medical imaging technology to market. My focus has been on developing advanced software products for medical imaging, 3D modeling and simulation by overcoming challenging technical and market barriers. I have a strategic focus on product and technology roadmap while being strongly involved in tactical execution.

In addition to product vision, product development and R&D, I have also built teams, established effective agile development practices and driven systematic innovation/intellectual property portfolio development.

Specialties: Executive leadership, machine learning, product/project management, software engineering, computer vision, medical imaging, medical software development, intellectual property.

Work Experience

- **HeartFlow** — Redwood City, CA
  Senior Vice President of Engineering — *July 2016 – Present*
  Vice President of Research and Development — *June 2012 – July 2016*
  - As SVP of Eng: HeartFlow is a Software as a Service (SaaS) company that provides large scale medical image analysis and cardiovascular modeling using the cloud that is accessed via a web interface. Led full stack technology and product development effort for HeartFlow, including scalable cloud development, web development, PACS/EMR integration, user interfaces, security, biophysical (blood flow) simulation, deep learning and image analysis software. Established agile software development processes, internal engineering infrastructure and maintained regulatory compliance of process for medical software development. Set strategic directions for product, technology and engineering roadmap while being strongly involved with tactical execution. Led group of ∼80 people.
  - As VP of R&D: Led technology development of core (regulated) medical imaging software product. This product provides advanced algorithms that leverage deep learning for automated cardiovascular image analytics and an interactive guided workflow for user visualization, editing and review of the results. The software produces a hyper-precise personalized 3D model of the heart and coronary vasculature which provides a substrate for blood flow simulation. A key challenge of the software was designing the workflow/visualization/tools to achieve reproducibility across users. Conceived the overall vision for the software, led the development, oversaw usability testing, full V&V, FDA 510(k) clearance and transition into operational usage. Led group of ∼20 people during course of the product development.
  - Represented HeartFlow externally by making presentations and forging academic, clinical and industrial collaborations.
  - Strategically and systematically drove development of Intellectual Property portfolio.

- **Siemens** — Princeton, NJ
  Line Manager — *Jan. 2010 – May 2012*
  Principal Research Scientist — *April 2010 – May 2012*
  Senior Research Scientist — *Sept. 2003 – April 2010 (senior since April 2008)*

- As Line Manager: Line management for a group of 20 people, including research scientists and software engineers.
- As Principal Research Scientist: Led projects and supervised junior scientists. Helped set strategic directions for technology development, hiring and acquisition. Represented Siemens Corporate Research internally and externally by making presentations and forging academic, clinical and industrial collaborations. Performed troubleshooting in crisis projects. Led research and development in areas of disruptive technologies.
- As Senior (Principal) Research Scientist: Wrote proposals, acquired projects and supervised junior research scientists, students and interns to meet software deliveries for the projects, as well as to advance research goals.
- As (Senior) Research Scientist: Researched, developed, patented, published and gave talks on computer vision, machine learning, 3D and medical imaging.
- As (Senior) Research Scientist: Designed and developed computer vision software for commercial products. Most applications of this software were in the area of medical image analysis, but also extended to non-medical projects such as airport security. Wrote software for approximately 20 different Siemens (and Siemens partner) products of varying scope.

Education

- **Boston University** — Boston, MA
  Ph.D., Cognitive and Neural Systems (Dr. Eric Schwartz, advisor) — *1999–2003*
- **University of Vermont** — Burlington, VT
  B.Sc., Electrical Engineering (Computer Engineering Focus) — *1995–1999*
  - Minors in applied mathematics and physics

Honors and Awards

- 2014: Inducted as a Fellow in the American Institute for Medical and Biological Engineering
- 2012: The **Edison Patent Award** for best patent in medical imaging was awarded for my Random Walker patent (7,460,709), due to its commercial impact and application to medical imaging. See the video https://www.youtube.com/watch?v=sbta_5zpVOA&list=PLWM4JZrnFZgxOwOKuGj5Uq9K4xAalRld8&index=15&feature=plpp_video

Press

- Podcast interview on Software Engineering Daily at:
  `https://softwareengineeringdaily.com/tag/heartflow/`

Professional activities

Journal Editor: Editorial board for the SIAM Journal on Imaging Sciences, editorial board for the Journal of Mathematical Imaging and Vision

Area Chair: Area chair for MICCAI 2012–2016 and CVPR 2013–2014.

Grant boards: Served on grant board for NIH small business grants and NSF computer vision grants.

Publications

Bibliometrics —
I have published a number of scientific and technical works, ranging from journal and conference articles to books. These numbers describe the amount of that work and the number of times that body of work has been cited in the scientific and technical literature.
Approx. total citations: **7,300**
h-index: **35**
i10-index: **93** (Google Scholar)
Books: **2**
Journal papers: **21**
Book chapters: **4**
Top-tier conference papers: **31**
Other conferences and tech reports: **45**

Intellectual property

I have been an inventor on numerous patents and worked closely with attorneys to develop claims and prosecute the patents. Additionally, I drove a systematic development of the IP portfolio at HeartFlow. These numbers describe the US patents for which I am an inventor or co-inventor.
Granted US patents: **112**
Additional pending US patents: **173**