Matthew R. Goodman

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Objective

Work with 3Scan to bring volumetric pathology to researchers and doctors everywhere.

Education

PhD. Biomedical Engineering (Incomplete)
University of Texas at Austin

M.S. Materials Science and Engineering, (GPA 3.83/4.0)
Thesis: "Properties of Stochastic Flow and Permeability of Random Porous Media" (link)
University of Arizona, Tucson, AZ

B.S. Materials Science and Engineering (In major GPA 3.55/4.0)
University of Arizona, Tucson, AZ

Patents & Publications

F Aeffner, D Bowman, N Buchbinder, M Bui, M Goodman, M Hartman, K Lillard, G Lujan, M Milani, O Turner, V Vemuri, A Yuil-Valdes, M Zarella "Introduction to Digital Tissue Image Analysis: DPA Whitepaper" Digital Pathology Association (in review)

M Goodman, T Huffman, C Daniel "Spatial multiplexing of histological stains" US Patent App. 15/205,288

C Daniel, M Goodman, K Sean, T Huffman "Methods and apparatuses for sectioning and imaging samples" US Patent App. 15/084,186

S Raghavan, M Goodman, T Huffman, C Daniel, C Monteith, J Kwon "Internet-connected high-throughput and high-resolution three-dimensional tissue scanner to enable large-scale automated histology" Imaging Systems and Techniques (IST), 2016.

M Goodman, C Daniel "Motion strategies for scanning microscope imaging" US Patent App. 14/529,503

C Sung, Y Choe, M Goodman, T Huffman, "Scalable, Incremental Learning for Cell Detection in High-Throughput 3D Microscopy Data" International Joint Conference on Neural Networks 2013.

AG Hendrick, RG Erdmann, MR Goodman, "Practical Considerations for Selection of Representative Elementary Volumes for Fluid Permeability in Fibrous Porous Media," Transport in Porous Media. Volume 94. 2012.

MR Goodman. "Brain–Machine Interfaces" – Chapter 26 of *New Materials and Technologies For Healthcare*. ISBN: 978-1848165588. 2012.

RG Erdmann, AG Hendrick, and MR Goodman "Properties of Stochastic Permeability," Trans-

actions of the Indian Institute of Metals. 2011.

Presentations

"Cloud Pathology" [re:Invent] Symposium: Cloud Computing for Biotech R&D. 10/2018

"New Approaches for Volumetric Pathology." MICCAI COMPAY 2018 Workshop. 9/2018

"Digital Pathology Challenges" Vision Industry and Technology Forum. 12/2017

"Make Dangerous Art" Phage Talks 9/2017

"The Physics of Tesla Coils and Swing-Sets" Ignite Talks 9/2016

"10 Tools For Everything" Lightening talk at SciPy 2012

Work Experience and Leadership

CTO & Co–Founder, 3Scan   May 2011 – Present
- Provide strategic vision and technical roadmap for 3Scan
- Grown and managed 3Scan's software group from scratch to into 4 groups totaling 16 engineers. Responsible for hiring, engineering management, and developer growth.
- Architected complete microscopy tool suite including robotics, image processing, high-performance storage, analysis, and customer interfaces.
- Early fundraising, grant writing, and VC interactions

President, Coup De Foudre   5/2015 – Present
- Create and lead technical high-voltage arts troup
- Incorporation of a 501c3 charity and organisation

Graduate Researcher, University of Texas at Austin   Fall 2010 – Fall 2012
- Computational modeling and imaging analysis of the primary visual cortex of primates
- Development of machine learning techniques for medical recommendation systems

Graduate Research Assistant, University of Arizona   Fall 2008 – Spring 2010
- Modeled heat and mass transfer for NASA/ESA space solidification experiments on ISS.
- Developed HPC CFD solver for solidification, microfluidics, and biological systems.

Consultant, PACE Metallography, ATI Allvac, Phoenix Heat Treating   Various

Project Leader, SEDS "Rockoon" project   Fall 2008 – Spring 2010
- Led team of two–dozen undergraduates in interdisciplinary design project
- Responsible for FAA Clearances and safety of high-altitude high-power rocketry

Scientific Data Analyst, ATI Allvac, Monroe, NC   Summer 2007 and Summer 2008
- Unified huge body of process data from several databases for purposes of process auditing and improvement by data–mining and machine–learning techniques
- Developed algorithms used by engineers and business analysts for understanding complex processes resulting in large cost savings by predictive/preventive maintenance
- Automated post process simulation of complex solidification phenomena for purposes of statistical process control and improvement (Python)
- Data–mining and scientific data analysis for process control resulting in process improvement and sizable cost savings

President, Keramos & **Vice–President,** Material Advantage   Fall 2007 – Spring 2008
  - Materials Science Honors Fraternity, Tutoring, and Social Organizations – Lead 10 students in outreach, teaching, and grant-writing. Keramos Awarded "Most Improved Chapter"

Treasurer – President, h+ Tucson   Fall 2007 – Spring 2008
  - Technoprogressive Journal Club – Basis of *h+ magazine*

MSE Laboratory TA/Preceptor, University of Arizona   Fall 2007 – Spring 2008
  - MSE 414 – Solidification of Castings – Ran aluminum casting laboratory
  - MSE 223 – Materials Processing – Taught three groups of 5–7 about materials processing
  - MSE 110 – Solid State Chemistry – Oversaw MSE related lab activities

Academic Honors

UT – NIH NRSA Fellowship for Imaging Science and Informatics	2010–2011
UA – Deans List	Spring 2008
UA – ASM International – Darko Babic Scholarship	2007–2008
UA – ASM National Education Subcommittee Student Representative	2007–2008
UA – College of Engineering – Award for Academic Distinction	2006–2008
UA – College of Engineering – Departmental Honors for Outstanding Achievement	2005–2006

Languages and Tools

Fluent in:	English, Python, Java, C, JIRA, Wrike, Jenkins, Gradle
Rusty at:	Typescript/Javascript, Vue, C++, LLVM-IR, CUDA
Used in prod:	Japanese, FORTRAN, qBasic, php, sql, Ruby/Rails, bash, Meteor
Played with:	Golang, Scala/Kotlin, Electron

Miscellaneous

OSS Contributions:	cPython, numba, scipy, pycuda, ecto, pandas
Architectures:	Atmel, Embedded ARM, Desktop, CPU/GPU Clusters, Petaflop HPC
Interests:	Brain-Machine Interfaces, Atmospheric Plasma Physics, Rock Climbing, Blacksmithing and Casting, High Power Electronics, EDA Software