Matthew R. Goodman

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Objective

Be a force for world betterment via incremental measured change.

Work Experience and Leadership

CTO & Co–Founder, 3Scan — May 2011 – May 2019

- Lead and experienced the startup arc from foundation to acquisition by Strateos
- Grew 3Scan through four doublings of staff, from 4 to 80+
- Hired, managed, grown, and developed ICs and leads in software, totaling ≈ 30 engineers.
- Worked with the the cofounders, board, VCs, team leads, and pharma partners to provide strategic vision and technical roadmap planning and project delivery

President, Coup De Foudre — Fall 2015 – Present

- Created and lead a high-voltage technical arts troup
- Delivered Burning Man 2019 Honorarium art project "Theophany"
- Incorporated and maintained a 501c3 charity structure
- Curate relationships with donors, museums, and grantees

Scientific Data Analyst, ATI Allvac — Summer 2007 – Summer 2008

- Unified huge body of process data from several databases for purposes of ML application
- Developed tools for engineers and analysts to model casting/forging processes
- Automated process simulation of solidification for process control and improvement
- Datamining and scientific data analysis for process control for process improvement and cost savings resulting in large cost savings by predictive/preventive maintenance

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

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
- Literal monkey wrangling

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.
- Worked with early GPU tech and large HPC systems.

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

President, Keramos & **Vice–President,** Material Advantage — Fall 2007 – Spring 2008

- Provided tutoring, and social organization
- Lead ≈ 10 students in outreach, teaching, and grant-writing.
- Keramos Awarded "Most Improved Chapter" in 2008

Treasurer – President, h+ Tucson Fall 2007 – Spring 2008
- Organized a technoprogressive journal club
- The group later became *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

Barista, Starbucks Fall 2005 – Fall 2008

Patents & Publications

F Aeffner, M Zarella, N Buchbinder, M Bui, **M Goodman**, D Hartman, G Lujan, M Molani, A Parwani, K Lillard, O Turner, V Vemuri, A Yuil-Valdes, and D Bowman "Introduction to Digital Image Analysis in Whole-slide Imaging" Digital Pathology Association, 2019.

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," Transactions of the Indian Institute of Metals. 2011.

News & Publications

"An operating system for the biology lab"
Nature Outlook 9/25/2019

"Three-dimensional Imaging and Scanning: Current and Future Applications for Pathology"
Journal of Pathology Informatics 9/2017

"3Scan raises $14 million for a robotic microscope that could accelerate drug discovery"
TechCrunch 7/2016

"Digital Imaging On The Cutting Edge Of Tissue Analysis"
Forbes 1/2015

"Mapping brain circuitry with a light microscope"
Nature Methods 6/2013

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" Ignite Talks 9/2017

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

"10 Tools for Everything" Lightening talk at SciPy 2012

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"
University of Arizona, Tucson, AZ

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

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 – College of Engineering – Award for Academic Distinction	2005–2008
UA – College of Engineering – Departmental Honors for Outstanding Achievement	2005–2006

Languages and Tools

Fluent in:	English, Python, Java, git, C, JIRA, Jenkins, Gradle, LaTeX
Rusty at:	Typescript/Javascript, Vue, Docker, ansible, C++, LLVM-IR, CUDA
Used in prod:	Japanese, FORTRAN, qBasic, php, sql, RoR, bash, Meteor, Scala
Played with:	Verilog, Golang, Kotlin, Electron, React Native, jHipster

Miscellaneous

OSS Contributions:	cPython, numba, scipy, pycuda, datadog, ecto, emscripten, pandas
Architectures:	FPGA, Atmel, ARM, Desktop, CPU/GPU Clusters, Petaflop HPC
Interests:	Brain-Machine Interfaces, Plasma Physics, Rock Climbing, Blacksmithing and Casting, High Power Electronics, EDA Software Abstract Algebra, Group-Theory, Quasicrystals, Satellites, Astronomy