MOHAMMAD M GHASSEMI, PH.D.

https://ghassemi.xyz ⋄ ghassemi@alum.mit.edu ⋄ codebase

EDUCATION

PhD, Massachusetts Institute of Technology *February 2012 - May 2018*
Major: Electrical Engineering and Computer Science
Minor: Institutional Communications
Advisors: Dr. Roger G Mark and Dr. Emery N Brown
[Thesis]: *Life After Death: Techniques for the Prognostication of Post-anoxic Coma Patients*

MPhil, University of Cambridge (UK) *October 2010 - July 2011*
Major: Information Engineering
Advisor: Prof. Daniel Wolpert
[Thesis]: *Shadows of the Mind: Using Discrete Decision Tasks to Infer Mental Representations*

BSc, New Mexico State University *August 2003 - May 2008*
Major: Electrical Engineering & Applied Mathematics
Minor: Computer Science
Advisor: Dr. Joseph R Denk
Distinctions: Outstanding Engineer
[Thesis]: *Jesus Existed: An Investigation into the Pauline Letters for the Historical Jesus*

SKILLS AND CERTIFICATIONS

Certifications	Kaufman Teaching Certificate
	Cognitive Ability Test Results
	CASA Child Advocacy Certificate
Technical Expertise	Artificial Intelligence, Machine Learning,
	Signal Processing, Databases, Web Development,
	Statistics, Clinical Informatics
Non-Technical Expertise	Grant Writing, Project Management, Innovation,
	Fund-raising, Public-Speaking, Strategy
Data Science Tools	Python, MATLAB, SQL, C
Web Design Tools	Python, HTML, CSS, JavaScript

ACADEMIC APPOINTMENTS

Michigan State University November 2018 - Present
Assistant Professor *East Lansing, MI*

Performing research at the interface of Artificial Intelligence, health, and behavioral science.

Massachusetts Institute of Technology July 2018 - Present
Affiliate, Institute for Medical Engineering and Science *Cambridge, MA*

Serve as a research affiliate with the Laboratory of Computational Physiology. Play a role in the organization of the annual Physionet Challenge; see website here.

JOURNAL PAPERS

[paper] **Real-Time Extended Psychophysiological Analysis of Financial Risk Processing**
TBD (2020)
M Singh, Q Xu, SJ Wang, MM Ghassemi, AW Lo

[invited paper] **The Identification of Patient-Specific Medication Dosing Policies via Deep Reinforcement Learning**
Frontiers in Digital Health (2020)
N Eghbali, T Alhanai, MM Ghassemi

[invited paper] **Unsupervised EEG Artifact Detection and Correction**
Frontiers in Digital Health (2020)
S. Sadiya, T. Alhanai, T Liu, MM Ghassemi

[paper] **Two-step Imputation and AdaBoost based Classification for Early Prediction of Sepsis on Imbalanced Clinical Data**
Critical Care Medicine (2020)
A Baniasadi, S Rezaeerad, H Zare, MM Ghassemi

[paper] **Cost-effectiveness analysis of multimodal prognostication in cardiac arrest with EEG monitoring**
Neurology (2019)
E Amorim, SS Mo, S Palacios, MM Ghassemi, W Weng, JW Lee, SS Cash, MT Bianchi, MB Westover

[paper] **Quantitative EEG Trends Predict Recovery in Hypoxic-Ischemic Encephalopathy**
Critical Care Medicine (2019)
MM Ghassemi, E Amorim, T Alhanai, JW Lee, S Herman, A Sivaraju, N Gaspard, L Hirsch, BM Scirica, M Donnino, S Biswal, VM Junior, SS Cash, EN Brown, RG Mark, MB Westover

[paper] **Estimating the False Positive Rate of Absent Somatosensory Evoked Potentials in Cardiac Arrest Prognostication**
Critical Care Medicine (2018)
E Amorim, MM Ghassemi, JW Lee, DM Greer, PW Kaplan, AJ Cole, SS Cash, MT Bianchi, MB Westover

[paper] **Management of Atrial Fibrillation with Rapid Ventricular Response in the Intensive Care Unit: A Secondary Analysis of Electronic Health Record Data**
Shock (2017)
A Moskowitz, K Chen, A Cooper, A Chahin, MM Ghassemi, LA Celi

[paper] **A Datathon Model to Support Cross-Disciplinary Collaboration**
Science Translational Medicine (2017)
MM Ghassemi, J Aboab, LA Celi, P Charlton, M Feng, DC Marshall, L Mayaud, T Naumann, N McCague, KE Paik, TJ Pollard, M Resche-Rigon, JD Salciccioli, DJ Stone

[paper] **MIMIC-III, A Freely Accessible Critical Care Database**
Nature Scientific Data (2016)
T Pollard, A Johnson, L Shen, L Lehman, M Feng, MM Ghassemi, B Moody, P Szolovits, LA Celi, RG Mark

[invited paper] **Machine Learning and Decision Support in Critical Care**
Proceedings of the IEEE (2016)
AEW Johnson, MM Ghassemi, S Nemati, KE Niehaus, D Clifton, GD Clifford.

[paper] **A Data-Driven Approach to Optimized Medication Dosing: A Focus on Heparin**
Intensive Care Medicine (2014)
MM Ghassemi, SE Richter, IM Eche, TW Chen, J Danziger, LA Celi

[paper] **Nocturnal pulsatile LH Secretion is Preserved Even During Fragmented Deep Sleep in Pubertal Children**
Journal of Clinical Endocrinology & Metabolism (2014)
ND Shaw, JP Bulter, S Nemati, T Kangarloo, <u>MM Ghassemi</u>, A Malhotra, JE Hall

[paper] **Cognitive Tomography Reveals Complex Task-independent Mental Representations**
Current Biology (2013)
NMT Houlsby, F Huszar, <u>MM Ghassemi</u>, G Orban, DM Wolpert, M Lengyel

[paper] **An ICA with Reference Approach in Identification of Genetic Variation and Associated Brain Networks**
Frontiers of Human Neuroscience (2012)
J Liu, <u>MM Ghassemi</u>, AM Michael, D Boutte, W Wells, N Perrone-Bizzozero, F Macciardi, DH Mathalon, JM Ford, SG Potkin, JA Turner, VD Calhoun

CONFERENCE PAPERS

[paper] **A tool to extract time-independent indicators of corporate success**
KDD (2020)
<u>MM Ghassemi</u>, A Thirupathi, T Alhanai

[paper] **Vision-Cognition: A tool to measure human occlusion reasoning**
ICASP (2020)
JFG Ayala, <u>MM Ghassemi</u>, T Alhanai

[paper] **EEG Channel Interpolation Using Deep Encoder-decoder Networks**
IEEE International Conference on Bioinformatics and Biomedicine (2020)
S. Sadiya, T. Alhanai, T Liu, <u>MM Ghassemi</u>

[paper] **Spotting Survivors: A Method to Predict the Fate of Startup Ventures**
Association for the Advancement of Artificial Intelligence (2020)
<u>MM Ghassemi</u>, C Song, T Alhanai

[paper] **SPread: Automated Financial Metric Extraction and Spreading Tool from Earnings Reports**
ACM International Conference on Web Search and Data Mining (2020)
A Nourbakhsh, <u>MM Ghassemi</u> and S Pomerville

[paper] **A Repository of Corpora for Summarization**
The International Conference on Language Resources and Evaluation (2018)
F Dernoncourt, <u>MM Ghassemi</u>, W Chang

[paper] [award] **Detecting Depression with Audio/Text Sequence Modeling of Interviews**
Interspeech (2018)
T Alhanai, <u>MM Ghassemi</u>, J Glass

[paper] [website] **You Snooze, You Win: the PhysioNet/Computing in Cardiology Challenge**
Conference on Computing in Cardiology (2018)
<u>MM Ghassemi</u>, BE Moody, LH Lehman, C Song, Q Li, H Sun, RG Mark, MB Westover, GD Clifford

[paper] **A Deep Deterministic Policy Gradient Approach to Medication Dosing and Surveillance in the ICU**
IEEE Engineering in Medicine and Biology Society (2018)
R Lin, MD Stanley, <u>MM Ghassemi</u>, S Nemati

[paper] **How is the Doctor Feeling? ICU Provider Sentiment is Associated with Diagnostic Imaging Utilization.**

IEEE Engineering in Medicine and Biology Society (2018)
MM Ghassemi, T Alhanai, J Rafa, RG Mark, S Nemati, FH Chokshi

[paper] **Personalized Medication Dosing Using Volatile Data Streams**
Association for the Advancement of Artificial Intelligence (2018)
MM Ghassemi, T Alhanai, MB Westover, RG Mark, S Nemati

[paper] **One-year mortality after recovery from critical illness: A retrospective cohort study**
PloS one (2018)
S Lokhandwala, N McCague, A Chahin, B Escobar, M Feng, MM Ghassemi, D J Stone, LA Celi

[paper] **An Open-Source Tool For The Automated Transcription of Paper-Spreadsheet Data**
IEEE International Conference on Big Data (2017)
MM Ghassemi, W Jarvis, T Alhanai, RG Mark, EN Brown, MB Westover

[paper] **Predicting Latent Narrative Mood using Audio and Physiologic Data**
Association for the Advancement of Artificial Intelligence (2017).
MM Ghassemi, T AlHanai

[paper] **The Effects of Deep Network Topology on Mortality Prediction**
IEEE Engineering in Medicine and Biology Society (2016)
D Hao, MM Ghassemi M Feng

[paper] **Optimal Medication Dosing from Suboptimal Clinical Examples: A Deep Reinforcement Learning Approach**
Engineering in Medicine and Biology Society (2016)
S Nemati, MM Ghassemi, GD Clifford

[paper] **Using Paraphrases to Improve Tweet Classification: Comparing WordNet and Word Embedding Approaches**
IEEE International Conference on Big Data (2016)
Q Li, S Shah, M Ghassemi, R Fang, A Nourbakhsh, X Liu

[paper] **Monitoring and Detecting Atrial Fibrillation using Wearable Technology**
Engineering in Medicine and Biology Society (2016)
S Nemati, MM Ghassemi, V Ambai, N Isakadze, O Levantsevych, A Shah, and GD Clifford

[paper] **Newsworthy Rumor Events: A Case Study of Twitter**
International Conference on Data Mining: Workshop on Event Analytics (2015)
A Nourbakhsh, X Liu, S Shah, R Fang, MM Ghassemi, Quanzhi Li

[paper] **A Visualization of Evolving Clinical Sentiment Using Vector Representations of Clinical Notes**
Conference on Computing in Cardiology (2015)
MM Ghassemi, RG Mark, S Nemati

[paper] **Patient Prognosis from Vital Sign Time Series: Combining Convolutional Neural Networks with a Dynamical Systems Approach**
Conference on Computing in Cardiology (2015)
L Lehman, MM Ghassemi, S Nemati

[paper] **An Enhanced Cerebral Recovery Index**
IEEE Engineering in Medicine and Biology Conference (2015)
MM Ghassemi, E Amorim, RG Mark, EN Brown, MB Westover

[paper] **A Fast and Memory-Efficient Algorithm for Learning and Retrieval of Phenotypic Dynamics in Multivariate Cohort Time Series**

IEEE International Conference on Big Data: Workshop on Big Data in Bioinformatics (2014)
S Nemati, <u>MM Ghassemi</u>

[paper] **Management and Analysis of Biomedical Big Data with Cloud-based In-memory Database and Dynamic Querying: a Hands-on Experience with Real-world Data**
Knowledge Discovery and Data Mining Conference (2014)
M Feng, <u>MM Ghassemi</u>, T Brennan, J Ellenberger, I Hussain, RG Mark

[paper] **Global Optimization Approaches for Parameter Tuning in Biomedical Signal Processing: A Focus of Multi-scale Entropy**
Computing in Cardiology Conference (2014)
<u>MM Ghassemi</u>, L Lehman, J Snoek, S Nemati

BOOKS AND BOOK CHAPTERS

[book] **Blended Learning in Practice: A Guide for Practitioners and Researchers**
MIT Press (2019) AG Madden, L Margulieux, RS Kadel, AK Goel, RA DeMillo, B Ferri, J Harris, A Ferri, D Joyner, M Braunstein, JC Cox, V Sadiraj, JF Sweeney, C Hiddleson, TG Buchman, <u>MM Ghassemi</u>, S Nemati, P Braun, AB Goodman, R Burnett, O Menagarishvili, A Frazee, D Webster, JL Doux, J Bankoff, KJ Knoespel

[chapter] **Communication Networks and Global Health**
Global Health Informatics Book
MIT Press (2017)
M Feng, <u>MM Ghassemi</u>

[book] **Secondary Analysis of Electronic Medical Records**
Springer (2016)
LA Celi, P Charlton, <u>MM Ghassemi</u>, AEW Johnson, M Komorowski, D Marshall, T Naumann, K Paik, TJ Pollard, J Rafa, J Salciccioli

[chapter] **Hyperparameter Selection**
Secondary Analysis of Electronic Medical Records
Springer (2016)
F Dernoncourt, S Nemati, EB Kassis, <u>MM Ghassemi</u>

[chapter] **Big Data and Optimization of Treatment Strategies**
Machine Learning for Healthcare Technologies
Springer (2016)
S Nemati, <u>MM Ghassemi</u>

INDUSTRY WHITE PAPERS

[paper] **A Protocol for Decentralized Human Networks**
Hivemind Networks (2019)
N Mazen, A Moghimi, Y Ozcan, <u>MM Ghassemi</u>, J Moffet

SHORT PAPERS, KEYNOTES, AND ABSTRACTS

[abstract] [slides] **The Challenges and Opportunities for Healthcare Recommendation Systems in a Rapidly Evolving Health Data**
ACM Conference Series on Recommender Systems (2018)
<u>MM Ghassemi</u>

[poster] **Dynamic EEG Features in Neurologic Prognosis of Coma Following Cardiac Arrest**
American Clinical Neurophysiology Society (2017)

MM Ghassemi, E Amorim, JW Lee, M van Putten, J Hofmeijer, A Sivaraju, N Gaspard, B Ruijter, S Herman, S Biswal, V Junior, MB Westover

[poster] **Dynamic Quantitative EEG Signatures Predict Outcome in Cardiac Arrest**
Neurocritical Care Society (2016)
MM Ghassemi, E Amorim, JW Lee, MB Westover.
*Recipient of Best Poster Award

[paper] **Neurological Severity of Illness Is Associated with Increased Resource Utilization**
International Symposium on Intracranial Pressure and Neuromonitoring (2016)
MM Ghassemi, S Nemati, MB Westover

[paper] **A Cascaded Regression Approach for Precision Medication Dosing**
IEEE Strategic Conference on Healthcare Innovations and Point of Care Technologies for Precision Medicine (2015)
MM Ghassemi and S Nemati

[paper] **Hierarchical Event Detection via Hidden Markov Modeling**
NIH-NBIB Trainee Conference (2014)
MM Ghassemi, EN Brown

INVITED TALKS

International Workshop on Health Recommender Systems — October 2018
Invited Keynote — *Vancouver, CA*

  Presented "The Challenges and Opportunities for Healthcare Recommendation Systems in a Rapidly Evolving Health Data Ecosystem"; see announcement here.

Intelligent Health — September 2018
Invited Speaker — *Basel, Switzerland*

  Presented "A Wearable AI system to Detect Conversational Tone"; see programme here.

Medical Development Group Forum — September 2018
Invited Speaker — *Weston, MA*

  Presented "Artificial Intelligence (AI) in Healthcare: How AI Applications Will Affect Your Life Personally and Professionally"; see announcement here.

Michigan State University — Jan 2018
Invited Speaker — *East Lansing, MI*

  Presented "Healthcare 2.0: Integrating health and Behavioral Data for AI-driven Care"; see announcement here.

Aetna — March 2018
Invited Speaker, Leader Speaker Series — *Hartford, CT*

  Discussed how technology can play a role in helping us learn more about ourselves, and improve our lives.

Univsersity of Tennessee — March 2018
Invited Speaker — *Knoxville, TN*

  Discussed how advances in data science and machine learning can help us better understand and improve our personal lives; see announcement here; see video of talk here

TEDx Beacon Street — November 2017
Invited Speaker — *Somerville, MA*

Presented "How to find the most interesting person you've never met"; see full presentaion here.

Massachusetts Institute of Technology
Invited Speaker

October 2017
Cambridge, MA

Presented "Techniques the the Prognostication of Coma Following Cardiac Arrest" at the Institute for Medical Science and Engineering.

International Conference on Extreme Learning Machines
Keynote Speaker

October 2017
Yuntai, China

Presented "Time Sensitive Modeling For Better Clinical Prognostication"; see announcement here.

Affectiva
Invited Speaker

March 2017
Boston, MA

Presented "Detecting latent narrative mood using audio and physiologic data"; see announcement here.

Samsung Strategy and Innovation Center
Invited Speaker

February 2017
San Jose, CA

Presented "Detecting Latent Narrative Mood using Audio and Physiologic Data".

Stanford University
Invited Speaker

February 2017
Stanford, CA

Presented "Echo Chambers? There's an App for That" at the SPARQ Research Collaborative in the Department of Psychology"; see announcement here.

American Clinical Neurophysiology Society
Invited Speaker

February 2017
Pheonix, AZ

Presented "Quantifying Dynamic EEG Features in Prognosis of Hypoxic Ischemic Encephalopathy"; see program here.

CONFERENCE/CHALLENGE ORGANIZATION

Physionet Challenge
Organizing Committee Member

2018
Cambridge, MA

Organized a data science challenge for the detection of sleep arousals; see challenge page here.

Critical Data Conference and Workshop
Organizing Committee Member

January 2014
Cambridge, MA

Assisted in the collection of over $40,000 in sponsorship funding for the event. Encouraged attendance from over 300 medical and engineering researchers across 12 countries.Arranged prominent speakers including the editor in chief of the *New England Journal of Medicine*.

Computing in Cardiology Conference
Organizing Committee Member

September 2014
Boston, MA

Reserved venue, organized activities and scientific sessions.

PATENTS

Method and Device for the Passive Recording of the Electrocardiogram while Working at a Desk Submitted November 2018
US Patent *Pending*

> The invention is a workstation that passively measures the user's electrocardiogram.

Methods And Systems For Determining People You Should Know and Autonomous Social Coaching April 2017
US Patent App. 15/482,487 *Ghamut Corporation*

> The invention provides users with suggestions on other users that they should meet, who they would not have been likely to meet without such a suggestion, and provides data-driven social coaching through an AI agent.

Adjustable Solar Cell Network August 2010
US Patent 20100193055 *Visible Light Solar Technologies*

> Describes a controllable voltage and current module that allows for up to 20% more effective capture of photovoltaic energy.

Modular Solar Device Power Distribution February 2010
US Patent 20100033019 *Visible Light Solar Technologies*

> Describes a unique, highly efficient engineering architecture for interface between a wide range of photovoltaic energy sources, battery technologies, and applications.

WORK EXPERIENCE

National Institutes of Health January 2021 - December 2021
National Service Scholar *Bethesda, MD*

> Selected by the NIH's Office for Data Science Strategy (ODSS) as A Data and Technology Advancement (DATA) National Service Scholar. I lead a team that spans 10 NIH institutes to Expand Theories of Brain Circuits Using Knowledge Integration.

Ghamut Corporation October 2016 - Present
Founder *Cambridge, MA*

> Ghamut is developing technologies to reinvent community building. Our flagship product, Connect, is used to build community on university campus across America. In 2017, Ghamut was a winner of the MassChallenge. In 2019, Ghamut was the recipient of a Phase I Small Business Innovation Research Grant From the National Science Foundation.

Standard and Poor's Financial Services October 2018 - August 2019
Associate Director, Data Science *New York, NY*

> Developed tools and techniques for the automated assessment of nations and international corporations.

Hivemind Networks Inc. May 2019 - Present
Lead Technical Advisor *Cambridge, MA*

> Developing a blockchain social network where users earn money every day.

Mindchild Medical May 2018 - August 2018
Consultant *Andover, MA*

> Characterized and improved algorithms for fetal electrocardiogram extraction.

Allstate   May 2017 - July 2017
Consultant   Chicago, IL

Provided strategic expertise in data management, analysis, and visualization.

Estée Lauder Company   September 2016 - Present
Consultant   New York, NY

Provide strategic expertise in data management, analysis, and visualization.

Thomson Reuters   May 2015 - August 2015
Technology Summer Associate   New York, NY

Investigated the use of social media data to predict rumors, and detect rare events. Utilized LSTM neural networks to infer the topical content and sentiment of social media activity.

HappiTech LLC   April 2014 - July 2015
Consultant   Amsterdam, Netherlands

Developed algorithm for estimation of heart rate from cell phone camera; see app here.

The Boston Consulting Group   October 2011 - January 2012
Associate   Dubai, UAE

Provided evidence-based strategies to public and private sector executives in the Middle East.

Mind Research Network   April 2010 - April 2011
Consultant   Albuquerque, New Mexico

Investigated functional brain networks in the context on psychiatric illness.

Visible Light Solar Technologies   May 2008 - March 2010
Engineering Lead   Albuquerque, NM

Lead the development effort of dynamic, intelligent solar powered electrical applications. Designed and implemented software to control LED lighting applications. Designed hardware for LED lighting applications. Performed research on affordable and novel solar cell lamination techniques as well as viability of indoor photovoltaic applications.

New Mexico State University   January 2008 - May 2008
Scientific Specialist   Las Cruces. NM

Developed a software package using LabVIEW to more effectively run, and interpret data from, an Ion Mobility Spectrometer.

Agilent Technologies   May 2007 - August 2007
Intern   Pleasanton, CA

Designed and contributed toward the implementation of a driver for Agilent's 35900E analog-to-digital converter.

Agilent Technologies   May 2006 - August 2006
Intern   Santa Clara, CA

Investigated, improved and redesigned components of Agilent's Mass Spectrometer line. Increased the speed of the device by approximately 1000 times after introducing redesigned components to the device. The redesigned components are currently being developed into a new product.

IBM Corporation May 2005 - August 2005

Intern *Tucson, AZ*

Improved security of the 3584 Automated Tape Library by designing a specialized security interface for the librarys operator panel.

GRANTS, SCHOLARSHIPS AND FELLOWSHIPS

Small Business Innovation Research Grant (Phase I) January 2018

$225,000 *National Science Foundation*

Awarded to Ghamut Corporation for the development of an AI-enabled community building platform.

Google Cloud Platform Startup Program November 2018

$20,00 *Google Cloud*

Awarded to support research and development activities of the Ghamut Corporation.

Community Building Grants November 2018

Worth $75,000

Awarded to support the Connect platform.

$50,000: University of Virginia

$20,000: Massachusetts Institute of Technology

$3,500: Johns Hopkins University

$1,500: University of Toledo

Amazon Web Services Startup Grant November 2018

$10,00 *Amazon Web Services*

Awarded to support research and development activities of the Ghamut Corporation.

National Research Service Award (T32HL007901) January 2017

$65,00 *National Heart, Lung, and Blood Institute*

Awarded as part of a graduate training grant for research in sleep medicine.

MIT Sandbox Grant October 2016, April 2017

$20,000 *MIT Sandbox Initiative*

Awarded to facilitate continued development of a platonic match-making software platform.

MIT Graduate Student Life Grant Spring 2015-Present

$16,000 *MIT Office of the Dean of Graduate Education*

Awarded to facilitate continued development of a platonic match-making software platform.

MIT Mind-Hand-Heart Grant Summer 2016

Worth $5,000 *MIT Mind Hand Heart*

Awarded to facilitate continued development of a platonic match-making software platform.

AWS Research Education Grant May 2015

Worth $8,000 *Amazon Corporation*

Awarded to support the distribution of a large, publicly accessible clinical data archive.

Advanced Multimodal Neuroimaging Training Program (T90DA22759) April 2014

Worth $75,000 *Massachusetts General Hospital*

Awarded to support advanced research activities on Prognostication of Neurological Outcomes Following Cardiac Arrest.

Henry Luce Fellowship
February 2014

Worth $40,000　　　　　　　　　　　　　　　　　　　　　　　　　　*Luce Foundation*

Successful candidates have a record of high achievement, outstanding leadership ability, and clearly defined interests. Provides stipends, language training, and individualized professional placement in Asia for 15-18 Scholars each year.

The Heinz Award
December 2013

Nominee　　　　　　　　　　　　　　　　　　　　　　　　　　*Heinz Family Foundation*

Individual achievement award given annually to recognize outstanding individuals for innovative contributions.

NIH Neuroimaging Training Program (T32EB001680)
September 2013

Worth $75,000　　　　　　　　　　　　　　　　　　　　　　　　*National Institute of Health*

To enable the development of novel, interdisciplinary research involving neuroimaging techniques.

Salerno Foundation Fellowship
June 2012

Worth $225,000　　　　　　　　　　　　　　　　　　　　　　　　　*Salerno Foundation*

Awarded to student with graduate research applicable to critical care medicine.

Gates Cambridge Scholarship
February 2010

Worth $60,000　　　　　　　　　　　　　　　　　　　　　　　　　*Gates-Cambridge Trust*

A highly prestigious full scholarship for study at the University of Cambridge (UK) granted on the basis of intellectual ability, leadership capacity and desire to use knowledge to contribute to society throughout the world. One of only 29 people in the United States to receive the distinction in 2010; see scholar-profile here.

Goldwater Scholarship
February 2010

Worth $8,000　　　　　　　　　　　　　　　　　　　　　　　*The Barry Goldwater Scholarship*

The Goldwater Scholarship is considered the most prestigious undergraduate award of its kind in Engineering, Math and Science; see announcement here.

Other Scholarships
2003 - 2008

Total worth $25,000　　　　　　　　　　　　　　　　　　　　　*New Mexico State University*

NMSU Alumni Association Scholarship
Professor Harold Brown Scholarship
Phelps Dodge Corporation Scholarship
Pioneer Bank Scholarship
International Test and Evaluation Scholarship
Bryant E. Pedrick Memorial Scholarship
Engineering College Scholarship

HONORS, AWARDS AND DISTINCTIONS

2020 BTG Talent Advisory Council
2020

Invited Member

The Talent Advisory Council comprises of a small group of BTG's most trusted talent.

MassChallenge Boston 2017

Silver Winner

The distinction is awarded to the top 1.5% of competitors.

MIT 100K 2017

Semi-Finalist

Selected for work on a web-platform that facilitates platonic social interactions between users.

Bell-Labs Innovation Prize 2015

Finalist

Selected for work on an invention that accomplished three high level objectives: patient monitoring, automated assessment of data, and the provision of actionable feedback.

Verizon Powerful Answers Award 2015

Semi Finalist

Selected for work on a wearable, social coaching algorithm.

MIT T=0 Hackathon September 2013

Winner *Cambridge, MA*

Awarded first place in the competition for developing a low-cost bicycle battery charger for deployment in the third world.

Outstanding Graduating Engineer May 2008

New Mexico State University

The highest academic distinction provided to the top graduating engineer each year.

Four Corners Embrace Award April 2007

American Petroleum Institute

Award for excellent presentation and research ability regarding the future of fossil fuels, and sustainable energy.

C.A.R.E. Award 2007

Citizens Alliance for Responsible Energy

For research and presentation regarding the current state of global and national energy production and its relationship to the environment and poverty. Presented pragmatic solutions to scientists and policy makers in New Mexico for developing non-fossil fuel energy sources.

The President's Volunteer Service Award (National) 2005

The White House

Recognized for participating in over 400 hours of community service.

Deans Honor List 2004 - 2008

New Mexico State University

Placed in top 15% of student body.

SELECTED MEDIA MENTIONS

Model Can More Naturally Detect Depression in Conversations
[MIT News] [TechCrunch] [AAAS] [Forbes] [Smithsonian] [Popular Science] [Axios]   2018

Physician Intuition: Doctors Rely on More than Just Data for Medical Decision Making
[MIT News] [BJ-HC] [Clinical Innovation] [CMAJNews] [TheNational-AE]   2018

Sensing the Unspoken: Wearable AI System can Detect a Conversation's Tone
[MIT News] [BBC] [Wired(US)] [Wired(UK)] [WSJ] [Newsweek] [Forbes] [Vice], [Engadget]   2017

Algorithm Connects Students to the Most Interesting Person They've Never Met
[MIT News] [World Economic Forum] [ACM] [The Conversation] [The Tech]   2016

Coma Prognostication
[ET Council]

Biofeedback Game
[Business Insider]   2015

Gates-Cambridge Scholarship
[Gates-Cambridge Trust News], [NMSU News Center]   2010

TEACHING AND TUTORIALS

CSE842: Natural Language Processing   Fall 2020
Instructor   *Michigan State University*

A graduate level course on Natural Language Processing. Lectures are available online here.

CSE477: Web Application Development   Spring 2020
Instructor   *Michigan State University*

An introductory course to web development that includes HTML, CSS, PHP, Javascript and SQL.

A Web App in 1 Hour   Fall, 2018
Instructor   *Massachusetts Institute of Technology*

A one hour course that walks students through the development of a Python Flask Web application; course slides here.

Secondary Analysis of Health Records (HST.953)   Fall, 2016
Instructor   *Massachusetts Institute of Technology*

Designed a session on predictive modeling, and assessment techniques.

Machine Learning in Critical Care   Winter, 2015
Instructor   *Massachusetts Institute of Technology*

A four session course on machine learning in critical care teaching students how to: Formulate a research question, preprocess clinical data, apply machine learning algorithms and interpret results.

Quantitative Systems Physiology (6.022j)   February 2012 - May 2012
Teaching Assistant   *Massachusetts Institute of Technology*

Prepared exams, homework assignments and tutored students in MIT's Quantitative Systems Physiology class (6.022j). Supported physiological laboratories, which required dissection of specimens including rabbits, frogs and cow hearts.

SOCIETIES

Journal of Physiological Measurement
Guest Editor & Program Committee Member

2019

Assessed scientific manuscripts for inclusion in the journal; manuscripts topics were generally associated with the applications of Artificial Intelligence methods to sleep.

American Medical Informatics Society
Scientific Reviewer (JAMIA)

2015-Present

Serve as a technical reviewer for Journal articles.

Business Talent Group
Member

2013 - Present

An exclusive network of independent consultants trained by boutique firms.

MIT Graduate Student Council
Co-chair of Academics, Research and Careers Committee

2015 - 2016

Managed $67,000 in resources. Served as student member of the *Committee for Graduate Admissions*. Organized multiple workshops and panel discussions on how to perform the academic search, secure a high-impact post-doctoral position, write a doctoral thesis, and communicate effectively.

PUBLIC SERVICE ACTIVITIES

National Science Foundation (NSF)
GFRP Reviewer

2020

Reviewed application materials according to intellectual merit and broader impact criteria.

Association for the Advancement of Artificial Intelligence (AAAI)
Program Committee Member

2018 - Present
New York, NY

Refereed papers submitted to the *Workshop on Knowledge Discovery from Unstructured Data in Financial Services.*

MIT Sandbox
Mentor

2018
Cambridge, MA

Mentoring several aspiring Entrepreneurs in the MIT ecosystem.

MIT Solve
Reviewer

2018
Cambridge, MA

Reviewed applications for the "Work of the Future" challenge.

Save Yemen Fundraiser
Organizer

Fall 2016
Cambridge, MA

Organized a fundraiser lunch for Doctors without Borders ($2,500 collected) for civilians in worn-torn Yemen.

Sana Engineering Workshop
Workshop Instructor

July 2013 - July 2014
Vellore, India

Guided undergraduate students in Vellore India through workshop on health-care informatics.

Science Fair Mentorship Program   July 2012 - July 2013
Co-founder   *Boston, MA*

   Worked with underprivileged children in the Boston area to inspire an interest in science and engineering through science fair mentorship.

The Court Appointed Special Advocate Program   January 2009 - August 2009
Child Representative   *Albuquerque,NM*

   Certified legal advocate for abused and neglected children. Investigated child abuse and neglect cases and provided recommendations to judge.

MENTEES AND STUDENTS

Sari Sadiya   PhD, Computer Science, Michigan State University
January 2019 - December 2020

Rachel Townson   BSc, Michigan State University
August 2018 - Present

Julian Ishii-Rousseau   MD PhD, Tokyo Medical and Dental University
August 2018 - Present

Sharon Tai   Researcher, Harvard Law School
April 2019 - Present

   Invented and patented a desk that measures a user's electrocardiogram.

Yasmine Simone   Undergraduate, University of Maryland
July 2018 - August 2018

Christopher Song   Undergraduate, Johns Hopkins University
June 2018 - August 2018

Hedyeh Elahinia   Undergraduate, University of Toledo
June 2017 - July 2018

Willow Jarvis   Undergraduate, MIT
August 2014 - August 2015

Joe Rowley   Undergraduate, University of California at Santa Cruise
August 2014 - July 2015

REFERENCES AND COLLABORATORS

Roger G. Mark, M.D. Ph.D.   2011 - Present
Professor, Massachusetts Institute of Technology

   Ph.D. supervisor, scientific collaborator and mentor

Nadeem Mazen   2018 - 2019
CEO, Hivemind Networks

   Developed novel crypo-currency framework

Intisar Rabb, Ph.D., J.D.   2018 - 2019
Professor, Harvard Law School

   Worked to develop tools to analyze historical documents.

Armineh Nourbakhsh   2018 - 2019
Vice President, AI Research, JP Morgan Chase

  Collaborator in development of NLP finance tools.

Sameena Shah, **Ph.D.**   2018 - Present
Managing Director, AI Research, JP Morgan Chase

  Work supervisor and scientific collaborator

Tuka Alhanai, **Ph.D.**   2014 - Present
Founder, Ghamut Corporation

  Co-founded Ghamut Corporation

Timothy Wilson, **Ph.D.**   2018 - Present
Professor, University of Virginia

  Scientific collaborator.

Ace Moghimi   2018-2019
COO, Hivemind Networks

  Colleague at Hivemind Networks

Shamim Nemati, **Ph.D.**   2012 - 2018
Professor, Emory University

  Scientific collaborator

Gari Clifford, **Ph.D.**   2015 - 2018
Professor, Georgia Institute of Technology

  Scientific collaborator

Emery N. Brown, **M.D. Ph.D.**   2013 - 2018
Professor, Massachusetts Institute of Technology

  Ph.D. supervisor

M. Brandon Westover, **M.D. Ph.D.**   2013 - 2018
Professor, Harvard Medical School

  Ph.D. committee member

Thomas Heldt, **Ph.D.**   2016 - 2018
Professor, Massachusetts Institute of Technology

  Ph.D. committee member

Surender Kumar   2017
Associate Director of Innovation, Allstate

  Supervisor for consulting engagement at Allstate

Kushal Vora   2017
Associate Director of Innovation, Samsung Corporation

  Oversaw industrial partnership on a scientific collaboration

Andrew Michael, **Ph.D.**   2010-2011
Director of Imaging Analytics and Informatics, Duke University

Oversaw scientific research at the Mind Research Network

Babak Kia, Ph.D.   2018-Present
CTO, Traive Finance

Oversaw consulting work at Traive Finance.