

Jaya Ghosh

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Highly motivated, focused and experienced leader offering entrepreneurial and technical expertise to expand the breadth of our biomedical technologies, and unifying diverse groups to achieve common goals. Resourceful and forward-thinking professional capable of managing personnel and processes, identifying needs, implementing improvements, and communicating in an efficient manner.

PROFESSIONAL EXPERIENCE

University of Missouri, Columbia, MO

Program Director, MU Coulter Biomedical Accelerator

July 2015-Present

January 2019-Present

Assistant Program Director, MU Coulter Biomedical Accelerator

July 2015-December 2018

- Promoted to Program Director to lead and manage all program processes and activities, market the program, develop overall program annual budget and oversee program expenditures
- Manage and improve all processes associated with proposal solicitation, review, project selection, project management and reporting
- De-risk proposed projects in aspects such as intellectual property and market opportunity, identify and engage early with potential partners with financing and product development capabilities, and then fund specific determinative experiments in a disciplined, managed process
- Work with investigators to track the progress of all funded projects against project milestones on a monthly basis and communicate the progress and/or changes to the project timeline to all stakeholders
- Work with the Technology Advancement Office at the University of Missouri on commercialization strategy for new technologies and plans for protection of key intellectual property
- Implement outreach strategy to build awareness of the Coulter Program at the University level, and organize events to foster new collaborations
- Prepare monthly reports on program status for review with the program executive committee

University of Missouri, Columbia, MO

September 2019-Present

Lead Program Manager, Midwest Biomedical Accelerator Consortium (MBArc), NIH Research Evaluation and Commercialization Hub (REACH)

- Manage and improve all processes associated with proof-of-concept funding opportunities available to 17 institutions within the MBArc network
- Oversee proposal solicitation, review, project selection, project management and reporting
- Work with investigators to track the progress of all funded projects against project milestones on a monthly basis and communicate the progress and/or changes to the project timeline to all stakeholders
- Work with funded investigators to identify and engage early with potential partners with financing and product development capabilities
- Work with Technology Transfer Offices on commercialization strategy for new technologies and plans for protection of key intellectual property
- Implement outreach strategy to build awareness of the Hub
- Prepare monthly reports on program status for review with the program leadership team

Trulasko College of Business, University of Missouri, Columbia, MO

January 2017-Present

Adjunct Instructor

- Co-instruct MANGMT 8200: Commercialization of Life Science Innovations, which is a 3-credit, semester long course designed to provide specialized frameworks and essential tools to project teams comprised of clinicians, engineers and students interested in successful translation of biomedical innovations from lab to market

BioComX/NIH C3i Program

September 2017-Present

Program Manager, Consultant

- Train early stage biomedical project teams and startups in the C3i process designed to provide the innovators with the specialized business framework and essential tools for successful translation of their technologies from lab to market
- Enhance and manage the teams' preparations for an NIH R01 or SBIR/STTR Phases 1 and 2 grant applications, as well as position the companies for phase 3 and professional funding success

University of Missouri Health Care, Columbia, MO

July 2014-June 2015

MU Biodesign & Innovation Fellow, Engineer (Postdoctoral)

- Collaborated on exclusive 3-person team to invent innovative new medical devices to revolutionize healthcare
- Performed hands-on investigation through surgery observation and physician interviews to identify unmet clinical needs

- Designed, built, and tested prototypes of solutions and conducted proof of concept studies
- Developed market research, capital seed funding and business case to bring inventions to market
- Examined regulatory pathway and patentability of each invention and carried out prior art searches
- **Developed three patent pending technologies**

Dalton Cardiovascular Research Center, Columbia, MO

January-June 2014

Postdoctoral Fellow

- Developed and implemented a high-throughput lab-on-a-chip platform for assaying effects of botulinum neurotoxin on quantal exocytosis using multichannel amplifier system in collaboration with Dr. Michael Baldwin, Dept. of Molecular Microbiology and Immunology, University of Missouri
- **Manuscript submitted based on novel findings**

University of Missouri, Columbia, MO

August 2007-December 2013

Graduate Research Assistant

- Investigated the effect of electrical stimulation on chromaffin cells using patch clamp electrophysiology
- Developed a single-cell electropermeabilization approach for stimulating exocytosis in individual chromaffin cells on multielectrode lab-on-a-chip devices, and subsequently recorded resulting amperometric current using the same underlying electrochemical electrode
- **Issued and pending patents on novel method of using the same electrode for stimulating and recording exocytosis on microchips**
- **Published findings in the highly reputed journal Lab on a Chip**
- Wrote an SBIR grant for application of on-chip amperometry in high-throughput assay of botulinum neurotoxin
- Developed a cell-based platform for detection of botulinum neurotoxin light chain E in collaboration with Dr. Michael Baldwin, Dept. of Molecular Microbiology and Immunology, University of Missouri

University of Missouri, Columbia, MO

Spring 2010-Spring 2013

Graduate Teaching Assistant for Applied Electronic Instrumentation Lab

- Instructed 50+ students through weekly three-hour lab and discussion sessions
- Developed and designed lab sessions and supplementary review materials to meet individual and group needs
- **Recipient of TA Choice Award, Missouri Students Association, University of Missouri, Spring 2012**

Infosys Technologies Limited, India

September 2005-June 2007

Software Engineer

- Developed and implemented testing modules of Finacle, a Banking software
- Developed business software migration platform for Bekins Van Lines, a relocation and logistics service provider
- **Recipient of TNS Star Award, Infosys Technologies Limited, 2007**

Manipal Academy of Higher Education, Manipal, India

January-May 2005

Undergraduate Researcher

- Developed a Fuzzy Petri-Net model for a discrete event system
- **Recipient of Best Student Project Award, Manipal Institute of Technology, 2005**

RELEVANT SKILLS, TECHNIQUES AND TRAINING

- Experimental/Technical: 3D printing (plastic and metal), Plastic injection molding, Light microscopy, Primary cell culture, Electropermeabilization, Patch clamp electrophysiology, Amperometry, Cyclic voltammetry
- BioMEMS: Microfabrication, Lab-on-a-chip technology and instrumentation
- Software: SolidWorks, AutoCAD, LabVIEW, COMSOL, Igor Pro, Microsoft Word, Power Point and Excel, Photoshop
- Familiar with: MATLAB, Scanning/Transmission electron & Fluorescence microscopy
- Software Training in: Shell Programming, VI Editor (Unix), C Programming, JAVA, J2EE, HTML, XML, XSL, Oracle, Visual Basic

PATENTS

- K. D. Gillis and **J. Ghosh**
Combination of single-cell electroporation and electrical recording using the same electrode US Patent 9,488,637
- **J. Ghosh**, E. Koehly, Y. Sarpong, R. de la Torre, J. Buehler, B. Hayes, T. Graff, K. Chen
Ergonomic Instrument Assisted Soft Tissue Mobilization (IASTM) Tool US Patent 10,434,032
- R. de la Torre, **J. Ghosh**, E. Koehly, Y. Sarpong
Instrument to close fascia during laparoscopic surgery US Patent 10,548,580

GRANTS

- W. Fay, S. Grant, W. Turpin, D. Wright, **J. Ghosh**
Midwest Biomedical Accelerator Consortium: MBarC \$ 1,171,566.00
National Institutes of Health – Rapid Acceleration of Diagnostics (RADx) 2020
- W. Fay, S. Grant, W. Turpin, R. Barohn, D. Wright, **J. Ghosh**
Midwest Biomedical Accelerator Consortium: MBarC \$ 4,000,000.00
National Institutes of Health 2019
- J. Tan, J. Parker, C. Fender, C. Helphingstine, **J. Ghosh**
Building Missouri Entrepreneurial Capacity by Training Faculty/Student
Innovators/Entrepreneurs and by Bridging the Funding Gap between Government Grants and
Professional Funding \$ 75,000.00
Missouri Technology Corporation 2017
- **J. Ghosh**, B. Hayes, J. Buehler
An ergonomic, affordable and multimodal Instrument-Assisted Soft Tissue Mobilization
(IASTM) Tool \$ 22,600.00
University of Missouri-Coulter Translational Partnership Program Seed Grant 2016
- F. Bunyak, T. Rupp, **J. Ghosh**
SmartMed-ID: Smartphone-based Medication Identification \$ 24,981.00
University of Missouri-Coulter Translational Partnership Program Seed Grant 2016
- **J. Ghosh**, B. Hayes, J. Buehler
Market evaluation: An ergonomic, affordable and multimodal Instrument-Assisted Soft
Tissue Mobilization (IASTM) Tool \$ 900.00
Regional Economic Development Inc. MOBEC Grant Award 2016
- J. Tan, J. Parker, C. Fender, C. Helphingstine, **J. Ghosh**
Building Entrepreneurial Capacity in Bioengineering and Medicine via the Coulter
Translational Partnership Program \$ 100,000.00
Missouri Technology Corporation 2016

REFERRED PUBLICATIONS

- R. A. de la Torre, **J. Ghosh** ASME. **Frontiers in Biomedical Devices**,
Device for Safely Closing Trocar Sites in Minimally Invasive 2017 Design of Medical Devices Conference,
Abdominal Surgery (pp. V001T08A012; 2 pages)
- **J. Ghosh**, X. Liu and K. D. Gillis **Lab on a Chip**, 2013
Electroporation followed by electrochemical measurement of quantal transmitter release from single cells using a patterned microelectrode 13 (11), 2083 - 2090

CONFERENCE PROCEEDINGS

- **J. Ghosh**, X. Liu, and K. D. Gillis. "Electrochemical Measurement of Electroporation-Induced Chloride-Stimulated Exocytosis on Microchips". *Biomedical Engineering Society 2011 Annual Meeting*. Hartford: Biomedical Engineering Society, 2011. 50. Print.
- **J. Ghosh**, X. Liu, and K. D. Gillis. "On-Chip Electroporation Results In Calcium- And Chloride- Stimulated Exocytosis Assayed With Planar Electrochemical Microelectrodes". *Biophysical Society 55th Annual Meeting*. Baltimore: Biophysical Journal, 2011. 407a. Web. 8 Aug. 2016.
- **J. Ghosh** and K. D. Gillis. "Integration of Electrical Stimulation Together With Electrochemical Measurement of Quantal Exocytosis on Microchips". *Biophysical Society 54th Annual Meeting*. San Francisco: Biophysical Journal, 2010. 681a. Web. 8 Aug. 2016.

POSTER PRESENTATIONS

- **2017 Design of Medical Devices Conference** – R. A. de la Torre and **J. Ghosh** “Device for Safely Closing Trocar Sites in Minimally Invasive Abdominal Surgery” (2017)
- **Missouri Symposium in Biophysics I, Columbia, Missouri** – **J. Ghosh** and K. D. Gillis. “Electroporation followed by electrochemical measurement of quantal transmitter release from single cells using a patterned microelectrode” (2013)
- **Biomedical Engineering Society Annual Meeting, Hartford, Connecticut** – **J. Ghosh**, X. Liu, and K. D. Gillis. “Electrochemical measurement of electroporation-induced chloride-stimulated exocytosis on microchips” (2011)

- **26th Missouri Life Sciences Week, Columbia, Missouri – J. Ghosh, X. Liu, and K. D. Gillis.** “On-Chip electroporation results in chloride-stimulated exocytosis assayed with planar electrochemical microelectrodes” (2011)
- **Single Molecule Biophysics Symposium, Columbia, Missouri – J. Ghosh, X. Liu, and K. D. Gillis.** “On-Chip electroporation results in chloride-stimulated exocytosis assayed with planar electrochemical microelectrodes” (2011)
- **Biophysical Society 55th Annual Meeting, Baltimore, Maryland – J. Ghosh, X. Liu, and K. D. Gillis.** “On-Chip electroporation results in chloride-stimulated exocytosis assayed with planar electrochemical microelectrodes” (2011)
- **25th Missouri Life Sciences Week, Columbia, Missouri – J. Ghosh and K. D. Gillis.** “Integration of electrical stimulation together with electrochemical measurement of quantal exocytosis on microchips” (2010)
- **Biophysical Society 54th Annual Meeting, San Francisco, California – J. Ghosh and K. D. Gillis.** “Integration of electrical stimulation together with electrochemical measurement of quantal exocytosis on microchips” (2010)

ORAL PRESENTATION

- **29th Annual Research & Creative Activities Forum (RCAF), Columbia, Missouri –** “Integration of Electrical Stimulation together with Electrochemical Measurement of Quantal Exocytosis on Microchips.” (2012)

INVITED LECTURES

- **Bioengineering Design**
University of Missouri, Columbia August and September, 2016
- **Life Science Innovation and Entrepreneurship: Needs Screening and Filtering**
University of Missouri, Columbia February, 2016
- **Basics: Cells and Cell Culture**
University of Missouri, Columbia Fall 2012-2015

EDITORIAL EXPERIENCE

- **2017 Design of Medical Devices Conference**
3 manuscripts reviewed December, 2016
- **Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) Programs, National Science Foundation**
Proposal review panelist 2019-Present

HONORS/AWARDS/ACCOMPLISHMENTS

- Panelist, WISER (Women in Science, Research & Entrepreneurship) Networking Breakfast (Columbia) 2019
- Panel Moderator, “Innovation to Entrepreneurship” Symposium (University of Missouri, Columbia) 2019
- Workshop Leader, Entrepreneurial Educator Summit (University of Missouri System, Columbia) 2018
- Recognized at Celebrating Innovation Dinner (University of Missouri, Columbia) 2017
- Bringing Up Business Pitch Competition Finalist (Columbia) 2016
- MU Biodesign & Innovation Fellow, Engineer (University of Missouri, Columbia) 2014
- TA Choice Award, Missouri Students Association (University of Missouri, Columbia) 2012
- Nominated, TA Choice Award, Missouri Students Association (University of Missouri, Columbia) 2011
- Organization Resource Group Travel Awards (2) (University of Missouri, Columbia) 2011
- Biomedical Engineering Society Student Travel Award (Connecticut) 2011
- Graduate Professional Council Travel Award (University of Missouri, Columbia) 2010
- Biophysical Society Student Research Achievement Award (Maryland) 2010
- Life Sciences Week Electron Micrography Contest, 2nd position (University of Missouri, Columbia) 2008
- TNS Star Award, Infosys Technologies Limited (India) 2007
- Best Student Project Award (Manipal Institute of Technology, India) 2005
- 2nd position, University Examination (Manipal Institute of Technology, India) 2005

MEDIA REPORTS

- Du, Adele. “10th annual Agroforestry Symposium solidifies the relationship between research innovation, entrepreneurship.” *The Maneater*. N.p., 29 Jan. 2019.
- Fleury, Sam. “Columbia College to host ‘Bringing up Business’ entrepreneurial pitch competition.” *CC Connected | Your connection to Columbia College*. N.p., 27 Sep 2016. Web. 11 Nov. 2017.
- “Biodesign Fellows Gain Hands-on Experience in Innovation, Business Creation.” *Mizzou Weekly News*. N.p., 9 July 2015. Web. 08 Aug. 2016.

- “GO-GETTERS.” *Columbia Daily Tribune*. N.p., 17 June 2010. Web. 09 Aug. 2016.
- Wiese-Fales, Jan. “Graduate Student’s Cellular Research Garners Recognition at International Conference - Engineering.” *University of Missouri, College of Engineering*. N.p., 30 July 2010. Web. 12 Aug. 2016.

EDUCATION

University of Missouri

- Doctor of Philosophy in Biological Engineering
Dissertation topic: “Integration of single-cell electropermeabilization together with electrochemical measurement of quantal exocytosis on microchips”
Advisor: Prof. Kevin D. Gillis

Dec 2013
4.0/4.0

Manipal Academy of Higher Education - Manipal Institute of Technology

- Bachelor of Engineering in Instrumentation & Control

May 2005
3.3/4.0

COMMUNITY ORGANIZATIONS AND PROFESSIONAL AFFILIATIONS

- Mentor, Entrepreneur Quest Student Accelerator (University of Missouri System, Columbia) Oct, 2018
- Mentor, Mizzou Venture Mentoring Service, Columbia, Missouri 2018-Present
- Volunteer, Robotics Merit Badge Class, Columbia, Missouri Sep, 2015
- Volunteer, The Food Bank for Central and Northeast Missouri Aug, 2015
- Volunteer, Mid-MO Pridefest Celebration, Columbia, Missouri Aug, 2015
- Student Member, Biophysical Society 2010-2013
- Student Member, Biomedical Engineering Society 2011-2013
- Treasurer and Webmaster, Graduates’ Club of Biological Engineering 2010-2012
- Webmaster and Media Content Manager, MU Dance and Recreation Association (MUDRA) 2009-2011
- Member, EYEDEATOR (Web Development, Digital Campaigning, Multimedia and Consultancy Team), Infosys Technologies Limited 2004-2005
- Student Member, IE (Institution of Engineers), E&E and IC Chapter, Manipal Institute of Technology 2003-2005
- Student Member, IEEE(I), Manipal Institute of Technology 2003-2005
- Organizing Member and Media Content Manager of “CISCON” – National Level Technical Symposium, Department of Instrumentation & Control Engineering, Manipal Institute of Technology 2004-2005