

RESUME

Alisha B. Diggs, Ph.D.

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SUMMARY

- Multiple Higher Ed degrees in STEM fields with expertise in engineering and keen interest in secondary and post-secondary STEM education curriculum, policy, and program assessment.
 - Committed to improving the quality of STEM education and strengthening the diversity of students and faculty in STEM fields.
 - Adept at designing and conducting evaluative assessments and reporting on program outcomes, impact, and effectiveness.
 - Developer of outreach programming for wide range of audiences possessing broad knowledge base of STEM curricula.
 - Seasoned public speaker and presenter of STEM concepts and evaluator of STEM-focused research for peer-reviewed publications.
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EDUCATION

2013 University of Michigan, Ann Arbor, MI – Ph.D. Biomedical Engineering

2004 University of Michigan, Ann Arbor, MI – M.S. Materials Science and Engineering

2002 University of Michigan, Ann Arbor, MI – M.S. Biomedical Engineering

1998 Xavier University of Louisiana, New Orleans, LA – B.S. Physics, *cum laude*

RELEVANT WORK/RESEARCH HISTORY

**Center for Engineering Diversity and Outreach (CEDO)
College of Engineering, University of Michigan
Ann Arbor, MI**

Postdoctoral Research Fellow, Engineering Education

January 2016-Present

1. Applied mixed method research techniques for data collection and analysis, information gathering, and ideation for four (4) Diversity, Equity, and Inclusion (DEI) subcommittees for the College of Engineering (CoE); served as liaison between subcommittees and UBER committee; contributing writer for Graduation Education, Staff, and Faculty subcommittees DEI reports; contributing writer and editor for overall CoE DEI Strategic Plan.
2. Program Co-Coordinator, NextProf Future Faculty Engineering Workshop series: a.) Develop, plan, implement, and evaluate workshop series geared towards early-stage (2nd and 3rd year) PhD students exploring academia as a career option (new to 2016); and b.) Plan, implement, assess, and evaluate workshop series for preparing diverse Sr.-level PhD candidate and postdoctoral researchers for faculty job search; c.) Design, create, and implement infrastructure and processes to evaluate program impact and track program alumni.
3. Preparation of literature reviews and analyses summarizing program effectiveness and impact, as well as scholarly manuscripts and conference presentations in the areas of DEI and future faculty preparation programs.
4. Grant-writing team member responsible for developing, writing, and editing sections for proposals and grant applications intended for federal funding sources.

Program Associate

January 2015-December 2015

Planning committee member for the 2015 NextProf Workshop series: a.) develop, plan, implement, and evaluate workshop series geared towards University of Michigan PhD students exploring academia as a career option (new to 2015); b.) plan, implement, and evaluate workshop series for preparing Sr.-level PhD candidate and postdoctoral researchers for faculty job search; c.) plan and develop process evaluation and planning manual with best practices for the implementation of NextProf Workshops.

Program Assistant

November 2013-December 2015

Improved CEDO's information management of specialized contacts and corporate engagement activities through the identification of organizational challenges as well as designing, managing, and implementing solutions to address those areas. Managed the CEDO Contact Management System (CMS) to maintain, collect, and report information on UM Engineering employer constituencies and UM Alumni with particular emphasis on CoE underrepresented minorities. Expanded the CMS to incorporate other CEDO constituencies. Facilitated the organization of corporate engagement activities by designing and implementing the administrative infrastructure to collect and report information on representatives, objectives, events, tasks, financial investments, and liaison accountability. Used commercial data management software packages (Microsoft Access, MySQL) for database management and data compilation and processing.

Institute For Research On Labor, Employment, and the Economy (IRLEE)

MForesight

University of Michigan

Ann Arbor, MI

Research Associate, Rapid Response Report

November 2015-June 2016

Regenerative Medicine Subject Matter Expert (SME) and science writing contributor responsible for the creation and management of original content for rapid response reports specific to biomanufacturing in the fields of regenerative medicine and synthetic/engineering biology; edited and synthesized contributed material from industry SMEs for technical reports, rapid response reports, and individual research studies solicited by MForesight funding agencies.

Writings (including original illustrations and graphics) explained scientific and technical concepts to various audiences, not limited to/including scientists and technical persons, business investors and stakeholders, as well as laypersons. Topics of discussion included state of the art in regenerative medicine research and biomanufacturing as well as a discussion of barriers (including intellectual property, technology transfer, regulations, and economic impact) incurred when developing new technologies.

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR-UP)

Metro Detroit-area, Michigan

STEM College Advising Consultant and Course Instructor

October 2015-Present

1. Designed, implemented, and facilitated workshops for college-bound students and parents seeking admissions into STEM-focused undergraduate programs.
2. Instructor, "College Matters Institute": a 6-part short-course to assist high school seniors with completion and submission of college applications to undergraduate STEM programs. Significant course

emphasis on admissions essays, academic portfolios, and academic advising for first-year course selection.

Two Heads Educational Consulting

New Orleans, LA

Co-Founder ; STEM Curriculum Consultant

February 2015-Present

Consulted with K-12 educators on best practices to incorporate engineering skills and projects in science and math curriculum. Developed engineering curriculum and projects for extra-curricular STEM programming for several K-12 levels: K-5, 6-8, and 9-12.

Cook-Chenault Research Group

Mechanical and Aerospace Engineering Department, Rutgers University

New Brunswick, NJ

Research Assistant (Short-term)

May 2013-September 2013

Applied qualitative and quantitative research methodologies to advance the understanding of curricular approaches to sustainable energy and power concentrations in undergraduate mechanical engineering programs across the U.S.

SELECTED PUBLICATIONS AND CONFERENCE PRESENTATIONS

Kota, S., Tesar, J., Diggs, A., Kong, Y., Molnar, L., Wilson, S., Hsia, G. Perorazio, T., and et.al. MForesight. *Rapid Response Report: Biomanufacturing Technologies for Engineering Biology*. Report number: MF-RR-2016-0101. Ann Arbor, Michigan, August 2016. Digital. <[Link here](#)>

Kota, S., Tesar, J., Diggs, A., Kong, Y., Molnar, L., Wilson, S., Hsia, G. Perorazio, T., and et.al. MForesight. *Rapid Response Report: Biomanufacturing Technologies for Regenerative Medicine*. Report number: MF-RR-2016-0102. Ann Arbor, Michigan, July 2016. Digital. <[Link here](#)>

Suárez-González, D., Lee, JS, Diggs, A., Lu, Y., Nemke, B., Markel, M., Hollister, SJ., Murphy, WL. *Controlled Multiple Growth Factor Delivery from Bone Tissue Engineering Scaffolds via Designed Affinity*. **Tissue Engineering Part A** 20 15-16 (Aug 2014) 2077-2087

Saito, E., Kang, H., Taboas, JM, Diggs, A., Flanagan, CL, Hollister, SJ. *Experimental and Computational Characterization of Designed and Fabricated 50:50 PLGA Porous Scaffolds for Human Trabecular Bone Applications*. **Journal of Materials Science: Materials in Medicine** 21 (2010) 2371-2383

Diggs, AB, Bae, CJ, Tseng, WJ, Flanagan, CL, Halloran, JW, and Hollister, SJ. *Assessing in vitro Degradation of β -Tricalcium Phosphate Ceramics via Micro-Computed Tomography*. **Key Engineering Materials** 396-398 (2009) 637-640

Terri Zachos, Alisha Diggs, Steven Weisbrode, Jeffrey Bartlett, Alicia Bertone. *Mesenchymal Stem Cell-mediated Gene Delivery of Bone Morphogenetic Protein-2 in an Articular Fracture Model*. **Molecular Therapy** 15 (22 May 2007) 1543 – 1550

The Effect of Composition on the Loss of Mechanical Property Due to the In Vivo Degradation of Calcium Phosphate Scaffolds. Poster Presentation, Accepted at the 5th International Conference on the Mechanics of Biomaterials and Tissues (ICOMBT); December 8-12, 2013, Sitges, Spain

Non-Linear Stress-Strain Measurements of Oncogenic Tumors Compared to Normal Breast Tissues. Poster Presentation, Accepted at the 5th International Conference on the Mechanics of Biomaterials and Tissues (ICOMBT); December 8-12, 2013, Sitges, Spain

Assessment of Composition, Microporosity, and Macroporosity on the Ability of Calcium Phosphate Scaffolds to Regenerate Bone. Poster Presentation, Presented at the 56th Annual Meeting of the Orthopaedic Research Society (ORS); March 6-9, 2010, New Orleans, Louisiana

SELECTED PROFESSIONAL SERVICE AND HONORS

- Invited Speaker, Keynote Address, Cass Tech STEM Career Day, Cass Tech High School, Detroit Michigan, May 2016
- Invited Speaker, Keynote Address, STEM GALAXY Closing Ceremonies, University of Michigan, August 2015, 2014
- Invited Speaker, Keynote Address, MITE 2 Opening Ceremonies, University of Michigan, August 2015
- Scientific reviewer of extended abstract and technical paper manuscripts: *ASEE 2017, 2014 Annual Conference (Engineering and Public Policy Division and PIC III Best Paper Competition), American Society of Engineering Education; ASME 2013 International Mechanical Engineering Conference & Exposition, American Society of Mechanical Engineers*
- Scientific Reviewer, Journal of the American Ceramics Society, 2012-2015
- Freelance Editor and Peer-Reviewer, 2005-Present
- Board Member, Cass Tech CTE STEM Advisory Board; CASS Tech High School, Detroit, Michigan, 2016
- Judge, Forsythe Middle School Science Fair, February 2016
- Coach/Mentor for Middle School Science Fair Project; students placed 2nd Place in Regional Competition
- Modern Day Technology Leader, 23rd Black Engineer of the Year Awards, February 2009