Laurence C. Bray, PhD
Department of Bioengineering
George Mason University
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EDUCATION

PhD, Biomedical Engineering-Computational Neuroscience 2010
University of Nevada, Reno, NV

MS, Bioengineering 2005
Clemson University Clemson, SC

BS, Biological Sciences, Minor in Bioengineering 2004
Clemson University, Clemson, SC

Scientific Baccalaureate Diploma (with Honors) 1999
Cannes, Lycée Bristol, France

ADMINISTRATIVE POSITION

Associate Chair 2015-present
Department of Bioengineering, George Mason University, Fairfax, VA

LEADERSHIP ACTIVITIES

Department of Bioengineering, George Mason University

Director of the undergraduate program

- Supervises the undergraduate program
- Chairs the curriculum and undergraduate program committee
- Serves as liaison to the office of undergraduate studies, academic advising, honors college, and institutional assessment
- Serves as both faculty and student advisor

Director of the master's graduate program

- Supervises the MS program
- Developed the application and launched the MS program (2017)
- Met with graduate committee, Mason council, and state council of higher education in Virginia (SCHEV) for approval

Program Development and Enhancement

- Conducts annual learning outcome assessments
- Oversees the preparation for program/accreditation reviews

- Proposes changes to requirements for the undergraduate and graduate programs and implement changes approved by the University Council
- Evaluates and modifies courses to continuously strengthen the curriculum

Budget and resource management

- Oversees the departmental budget, plus indirect cost and foundation accounts
- Prepares annual budget reports
- Manages TA lines, graders and adjunct positions
- Allocates funds in support of scholarly and creative activities

Promotion of department activities

- Oversees and launches updates to website
- Encourages and advises student initiatives
- Promotes undergraduate research
- Creates connections between faculty/students and external collaborators

Student recruitment and retention

- Creates an orientation program for new majors
- Develops and maintains student guides
- Organizes recruitment and retaining events
- Develop and distributes flyers and newsletters

Outreach to local communities

- Outreaches to local industries, clinical organizations, and government agencies
- Judges High School Engineering Presentations
- Speaks to Women in Math Society in Centreville High School
- Promotes STEM to K-8 students

Curriculum Changes and Scheduling

- Prepares course schedules and teaching assignments
- Authorizes all forms for requirements for the majors
- Makes changes to requirements for the undergraduate major
- Reviews syllabi and approves new courses

Personnel

- Supervises staff, including one academic advisor, one program academic assistant, one fiscal coordinator, one student worker, and one laboratory manager
- Mentors and supervises both undergraduates and graduate students
- Interviews candidates and work with chair/faculty to recruit top candidates
- Manages the selection of student awards and honors

ACADEMIC POSITIONS

Teaching Assistant Professor 2015-present
Department of Bioengineering, George Mason University, Fairfax, VA
Research Assistant Professor 2013-2015
Department of Bioengineering, George Mason University, Fairfax, VA
Post-Doctoral Associate 2010-2013
Department of Computer Science & Engineering, University of Nevada, Reno, NV
Graduate Research Assistant 2007-2010
Brain Computation Laboratory, University of Nevada, Reno, NV
Laboratory Technician II 2006-2007
Department of Pharmacology, School of Medicine, University of Nevada, Reno, NV
Graduate Research Assistant 2004-2006
Department of Bioengineering, Clemson University, Clemson, SC

TEACHING EXPERIENCE

- **BENG 101** (2016): Introduction to Bioengineering
- **BENG 499** (2016): GMU-INOVA Applied Neuro-technologies
- **BENG 313** (2016): Physiology for Engineers: in progress
- **BENG 491** (2015): Senior Seminar I
- **BENG 492** (2013-16): Senior Advanced Design Project I
- **BENG 493** (2014-17): Senior Advanced Design Project II
- **BENG 495** (Summer 2014): Bioengineering Senior Seminar II
- **CS 491C/691C** (2011-2012): Biomedical Computing
- **Tutorial:** Real-Time Simulation of Large-Scale Neural Models using the NeoCortical Simulator (NCS) (OCNS 2012)

PROFESSIONAL PUBLIC SERVICES AND OUTREACH

George Mason University

- **Biomedical Engineering Society** (2014-present): Student Chapter Supervisor
- **Undergraduate Research Scholars Program** (2014-present): Undergraduate Research Student Mentor
- **Senior Design** (2011-present): Senior Design Project Team Advisor
- **Bioengineering Academic Program Assistant Search** (Spring 2016): Committee Chair
- **Office of Student Scholarship, Creative Activities Assistant Director Search** (Spring 2016): Committee Member
- **Volgenau School of Engineering Academic Advisor Search** (Summer 2015): Committee Member

Community

- **Aspiring Scientists Summer Internship Program** (2014-present): Mentor
- **Centreville High School** (2014-present)**:** Women in Math Society Speaker
- **Woodbridge High School** (2016)**:** Judge for Engineering Presentations

- **Middle School Workshop** (2016)**:** Youth Bioinformatics Symposium
- **Centreville Elementary School** (2016)**:** Promoting STEM to K-6 students
- **Grant Review Panel** (2015)**:** Neural Systems Cluster of the Biological Sciences Directorate, Proposal Reviewer

PUBLICATIONS

McKenna, E., **Bray, L.C.,** Joiner, W.M. The temporal offset between movement and online visual feedback does not influence recalibration to novel movement dynamics, but does affect endpoint precision. Under Review, 2016.

Bray, L. C., Bansal, S., Peterson, M. S., Joiner, W. M. Trans-Saccadic Perceptual Sensitivity is Aligned to, but Less Variable than the Respective Eye Movement Fluctuations, Journal of Neurophysiology, 2015.

Bansal, S., **Bray, L. C.,** Peterson, M. S., Joiner, W. M. The Effect of Saccade Metrics on the Corollary Discharge Contribution to Perceived Eye Location. Journal of Neurophysiology, 1:113(9):3312-22, 2015.

Chavez, M., Rowe C., Jordan N., Tanna D., Hoang R., Dascalu S., **Bray L. C.**, Harris, Jr. F. C. NeoCortical Builder: A Web Based Front End for NCS. In Proceedings of the 27th International Conference on Computer Applications in Industry and Engineering (CAINE), New Orleans, LA, 2014.

Almachar E., Falconi A., Gilgen K., Jordan N., Tanna D., Hoang, R., Dascalu, S. **Bray L. C.**, Harris, Jr. F. C. NeoCortical Repository and Reports: Database and Reports or NCS. In Proceedings of the 23rd International Conference on Software Engineering and Data Engineering (SEDE), New Orleans, LA, 2014.

Hoang R. V., **Bray L.**, Tanna D., Dascalu S., Harris, Jr. F. C. A Novel CPU/GPU Simulation Environment for Large-Scale Neural Modeling. Front. Neuroinformatics. 7:19, 2013.

Bray L., Ferheyhough G., Barker E., Thibeault C., Goodman P. H., and Harris, Jr. F. C. Reward-Based Learning for Virtual Neurorobotics Through Emotional Speech Processing. Frontiers in Neurorobotics 7:77, 2013.

Jones A., Cardoza J., Liu D. J., **Bray L.,** Bryant B., Dascalu S. M., Louis S. J., and Harris, Jr. F. C. A Software Package for Visualizing Complex, Distributed Neural Networks. BMC Neuroscience, 14(Suppl 1):P158, 2013.

Bray L., Barker E., Hoang R., Bryant B., Dascalu S., Harris Jr. F.C. Goal-Related Navigation of a Neuromorphic Virtual Robot. BMC Neuroscience 13(Suppl 1):O3, 2012.

Bray L., Anumandla S. R., Thibeault C., Hoang R., Goodman P. H., Dascalu S. M., Bryant B. D., and Harris Jr. F. C. Real-Time Human-Robot Interaction Underlying Neurorobotic Trust and Intent Recognition. Neural Networks. 2012.

Jordan N., Narala N., Perry K., **Bray L.,** Dascalu S., and Harris Jr. F.C. Design and Implementation of an NCS-NeuroML Translator. In Proceedings of the International Conference on Software and Data Engineering (SEDE), Los Angeles, CA, 2012.

Thibeault C., Hegie J., **Bray L.**, and Harris Jr. F.C. Simplifying Neurorobotic Development with NCSTools. In Proceedings of the 2012 Conference on Computers and Their Applications (CATA 2012), Las Vegas, NV. 2012.

Anumandla S .R., **Jayet Bray L.,** Thibeault C., Hoang R., Goodman P. H., Dascalu S. M., and Harris Jr. F.C. Modeling Oxytocin Induced Neurorobotic Trust and Intent Recognition in Human-Robot Interaction. In Proceedings of the International Joint Conference on Neural Networks (IJCNN), San Jose, CA, 2011.

Bray L., Quoy M., Goodman P. H., Harris Jr. F.C. A Circuit-Level Model of Hippocampal Place Field Dynamics Modulated by Entorhinal Grid and Suppression-Generating Cells. Frontiers in Neural Circuits, 2010.

CONFERENCES AND SYMPOSIA

2015 Society for Neuroscience (SfN), Chicago, IL

2015 Society for the Neural Control of Movement (NCM), Charleston, SC (abstract submitted)

2014 Society for Neuroscience (SfN), Washington, DC

2014 Biomedical Engineering Society (BMES), San Antonio, TX

2013 Conference on Computational Neuroscience (OCNS), Paris, France

2012 Neural Information Processing Systems (NIPS), Lake Tahoe, NV

2012 Computer Science & Engineering Symposium, Reno, NV

2012 Conference on Computational Neuroscience (OCNS), Atlanta, GA

2012 Conference on Computers and Their Applications (CATA), Las Vegas, NV

2011 International Joint Conference on Neural Networks (IJCNN), San Jose, CA

2011 Computational and Systems Neuroscience (CoSyNe), Salt Lake City, UT

2010 2nd Annual SNC-SfN Research Symposium, Reno, NV

2010 Computational and Systems Neuroscience (CoSyNe), Salt Lake City, UT

2009 Summer Bioengineering Conference, Squaw Creek, Lake Tahoe, CA

FUNDED GRANTS

George Mason University, Bray (PI) 2015-2017
Curriculum Development, Scholarship Development Grants -- Role: PI

Office of Naval Research, Bray (co-PI): 10/1/2010 – 09/30/2013
Large-scale biologically realistic models of brain dynamics applied to intelligent robotic decision making -- Role: co-PI

HONORS AND AWARDS

- George Mason Leadership Legacy Program (2016)
- University of Nevada, Senior Design Best Project (2012-2013)
- Clemson Honor Roll Banquet (2000-2004)
- Member of the ACC Academic Honor Roll (2000-2003)
- Clemson Most Improved Player (2000)

PROFESSIONAL ASSOCIATIONS

- Biomedical Engineering Society (BMES)
- Society for Neuroscience (SfN)
- Neural Control of Movement (NCM)
- Organization for Computational Neurosciences (OCNS)

REFEREE FOR JOURNALS

- Frontiers in Computational Neuroscience
- Neural Networks
- IEEE Transactions on Autonomous Mental Development
- INNS-WC (competition)