Marcel Bernucci

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Education

University of California, Davis — Davis, California
B.S. in Biomedical Engineering & Managerial Economics Minor — *Jun. 2015*

Experience

UC Davis Biomedical Engineering Department - Srinivasan Lab — Davis, California
Junior Specialist — *Jun. 2015 – Present*

- **MATLAB Programming:** Correct for geometric distortion effects in Optical Coherence Tomography (OCT) intensity image volumes, and develop structural segmentation techniques to quantify cortical thickness as a potential biomarker for neurological diseases related to a high fat diet. Acquire brain and retinal blood flow measurements via Doppler OCT image processing, in addition to generating brain and retinal angiograms.
- **Optical Systems Design:** Converted a commercial OCT system into a rodent retinal ophthalmoscope that achieves an imaging surface area approximately sixteen times larger than the original system.
- **Lab Machinist**: Design and craft custom parts, e.g. galvanometer mounts, rat stereotaxis, line camera mounts, and others, using mill and CNC machining.
- **Animal Surgical Tech**: Experienced in rodent handling, thinned-skull surgeries, and rodent brain and eye OCT imaging.

Watwood, Inc. — Granite Bay, California
Engineering Consultant — *Jun. 2015 – Present*

- Co-invented the HemiDrive, a mechanical wheelchair accessory that enables hemiplegics to independently self-transport.

Land O'Lakes Cooperative Member - Forage Genetics — Davis, California
Corn Pollinator — *Jul. 2014 – Aug. 2014*

UC Davis Department of Orthopaedic Surgery - Reddi Lab — Sacramento, California
Summer Student Researcher — *Jul. 2013 – Sept. 2013*

UC Davis Biomedical Engineering Department - Silva Lab — Davis, California
Lab Intern — *Jul. 2012 – Feb. 2013*

Freeman Elementary School — Woodland, California
After School Education and Safety (ASES) Tutor — *Aug. 2012 – Mar. 2013*

Related Qualifications

- Experience in leading and collaborating with laboratory teams of postdoctoral fellows, Ph.D. students, and staff.
- **Software Proficiency**: MATLAB, SOLIDWORKS, LaTex, Microsoft Office, and some LabVIEW, ImageJ, Zemax OpticStudio, and LensMechanix.
- Fluent in written and spoken Portuguese and English, proficient in Spanish.

Honors and Awards

Excellence in Manufacturing Senior Design Award — Davis, California — *12 Jun. 2015*

Eagle Scout - Troop 66 — Davis, California — *Dec. 2009*

Publications

1. *(in progress)* **M. Bernucci**, C. Merkle, and V. Srinivasan, "Using a contrast agent to explain vascular scattering patterns in OCT angiography".

2. *(in progress)* **M. Bernucci**, J. Norman, C. Merkle, H. Aung, J. Rutkowsky, J. Rutledge, and V. Srinivasan, "Assesing cortical and subcortical changes in a Western diet mouse model using spectral / Fourier domain OCT".

3. S.P. Chong, **M. Bernucci**, H. Radhakrishnan, and V. Srinivasan, "Structural and functional human retinal imaging with a fiber-based visible light OCT ophthalmoscope," Biomed. Opt. Express 8, 323-337 (2017). (link)

4. C. Leahy, H. Radhakrishnan, **M. Bernucci**, and V. Srinivasan, "Imaging and graphing of cortical vasculature using dynamically focused optical coherence microscopy angiography," *J. Biomed. Opt*. 21(2), 020502 (2016). doi: 10.1117/1.JBO.21.2.020502 (link)

Patent

M. Bernucci, P. V. Dang, D. Ho, S. Lucero, B. Watwood, C. Zikry. "HemiDrive-M; a mechanical steering mechanism for one-armed operation of manual wheelchairs," American Patent, non-provisional patent filed October 11, 2016.

Conference Talks

1. **M. Bernucci**, J. Norman, C. Merkle, H. Aung, J. Rutkowsky, J. Rutledge, and V. Srinivasan, "Assesing cortical and subcortical changes in a Western diet mouse model using spectral / Fourier domain OCT," at *SPIE/BIOS Photonics West: Neural Imaging and Sensing* in San Francisco, California.

2. *(accepted for presentation)* **M. Bernucci**, C. Merkle, and V. Srinivasan, "Using a contrast agent to explain vascular scattering patterns in OCT angiography," at *ARVO 2017* in Baltimore, Maryland.