JESSIE R. LIU

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San Francisco, California.

EDUCATION

Ph.D. Candidate, Bioengineering August 2017 - Present
Advisor: Edward F. Chang, M.D.
Course focus: Machine learning for neuroprosthetics
UC Berkeley - UCSF Graduate Program in Bioengineering
Berkeley & San Francisco, CA, USA.

B.S., Bioengineering 2013 - 2017
Minors: Chemistry, Korean *Summa cum laude*
University of Pittsburgh
Pittsburgh, PA, USA.

RESEARCH

Graduate student researcher May 2018 - Present
Chang Lab, UCSF. *San Francisco, CA*

Advisor: Edward F. Chang, M.D.

· Develop computational algorithms for a speech brain computer interface using signal processing and machine learning.
· Research the neural basis of speech production.

Research assistant Jan 2014 - July 2017
Modo Lab, University of Pittsburgh. *Pittsburgh, PA*

· Characterized the distribution of thrombospondin in the extracellular matrix of healthy cortical tissue.
· Developed pipelines for automated histology analyses.

AWARDS AND HONORS

2013 - 2017	University of Pittsburgh Engineering Dean's List
Summer 2016	Swanson School of Engineering Undergraduate Summer Research Internship
Summer 2015	Swanson School of Engineering Undergraduate Summer Research Internship
Summer 2015	*(awarded but declined)* University of Pittsburgh Honors College Health Sciences Fellowship
2013 - 2017	University of Pittsburgh Chancellor's Scholarship Nominee Merit Scholarship
2013 - 2017	University of Pittsburgh Kerschgens Engineering Alumni Scholarship

TEACHING

Winter 2021 **Teaching Assistant**
Neural and Behavioral Data Analysis, Dept. of Neuroscience
University of California, San Francisco, CA.

Fall 2016 & Spring 2017 **Teaching Assistant**
Cell Biology I & II, Dept. of Bioengineering
University of Pittsburgh, PA.

Spring 2015 & Spring 2016 **Conference Co-Chair**
First-Year Engineering Conference, Swanson School of Engineering
University of Pittsburgh, PA.

OUTREACH

2018 - Present **Peer Advisor**
Bioengineering Student Association
UC Berkeley - UCSF Graduate Program in Bioengineering
Berkeley & San Francisco, CA.

2018 **Internal Networking Committee**
Bioengineering Student Association
UC Berkeley - UCSF Graduate Program in Bioengineering
Berkeley & San Francisco, CA.

TECHNICAL SKILLS

Programming
Expert in Python 3 with PyTorch, Tensorflow, Pandas, and other common scientific computing packages.
Proficient in Bash and Matlab.
Some experience with PyQtGraph.

PUBLICATIONS

Peer reviewed articles

* indicates equal contribution

Moses*, D. A., Metzger*, S. L., **Liu***, **J. R.**, Anumanchipalli, G. K., Makin, J. G., Sun, P. F., Chartier, J., Dougherty, M. E., Liu, P. M., Abrams, G. M., Tu-Chan, A., Ganguly, K., & Chang, E. F. (2021). Neuroprosthesis for decoding speech in a paralyzed person with anarthria. *New England Journal of Medicine*, *385*(3), 217–227. https://doi.org/10.1056/nejmoa2027540

Liu, **J. R.**, & Modo, M. (2018). Quantification of the extracellular matrix molecule thrombospondin 1 and its pericellular association in the brain using a semiautomated computerized approach. *Journal of Histochemistry & Cytochemistry*, *66*(9), 643–662. https://doi.org/10.1369/0022155418771677

Wahlberg, B., Ghuman, H., **Liu**, **J. R.**, & Modo, M. (2018). Ex vivo biomechanical characterization of syringe-needle ejections for intracerebral cell delivery. *Scientific Reports*, *8*(1). https://doi.org/10.1038/s41598-018-27568-x

Ghuman, H., Gerwig, M., Nicholls, F. J., **Liu**, **J. R.**, Donnelly, J., Badylak, S. F., & Modo, M. (2017). Long-term retention of ECM hydrogel after implantation into a sub-acute stroke cavity reduces lesion volume. *Acta Biomaterialia*, *63*, 50–63. https://doi.org/10.1016/j.actbio.2017.09.011

Nicholls, F. J., **Liu**, **J. R.**, & Modo, M. (2017). A comparison of exogenous labels for the histological identification of transplanted neural stem cells. *Cell Transplantation*, *26*(4), 625–645. https://doi.org/10.3727/096368916x693680

Modo, M., Hitchens, T. K., **Liu**, **J. R.**, & Richardson, R. M. (2015). Detection of aberrant hippocampal mossy fiber connections: Ex vivo mesoscale diffusion MRI and microtractography with histological validation in a patient with uncontrolled temporal lobe epilepsy. *Human Brain Mapping*, *37*(2), 780–795. https://doi.org/10.1002/hbm.23066

Conference poster presentations

* indicates equal contribution

Liu, **J. R.**, & Modo, M. (2016). *An automated comparison of the distribution of extracellular matrix molecules in the brain* [Biomedical Engineering Society].

Liu, **J. R.**, & Modo, M. (2015). *Mapping the extracellular matrix: An automated analysis of the striatal distribution of thrombospondin* [Biomedical Engineering Society].