

# Alaka Acharya

PhD Candidate, Biomedical Engineering, SESRI Lab, Harbin Institute of Technology  
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## RESEARCH INTERESTS

My primary research interests include Connectivity and Morphometry Analyses, Cognition in Aging and Neurodegenerative Disorders, Machine Learning techniques, and Data Analytics.

## EDUCATION

### PhD in Biomedical Engineering, September 2015 – February 2022 (Expected)

Harbin Institute of Technology, Harbin, PR China

### MTech in Biomedical Engineering, November 2012 – October 2014

Andhra University, Vishakhapatnam, Andhra Pradesh, India

### Bachelor's in Biomedical Engineering, September 2006 – December 2010

College of Biomedical Engineering and Applied Sciences, Purbanchal University, Kathmandu, Nepal

## PAPERS / PUBLICATIONS

**Acharya, A.**, Liang, X., Tian, W., Jiang, C., Han, Y., & Yi, L. (2019). White Matter Hyperintensities Relate to Basal Ganglia Functional Connectivity and Memory Performance in aMCI and SVMCI. *Frontiers in neuroscience*, 13, 1204.

Kozhevnikov, E., Qiao, S., Han, F., Yan, W., Zhao, Y., Hou, X., **Acharya, A.**, ... & Chen, X. (2019). A dual-transduction-integrated biosensing system to examine the 3D cell-culture for bone regeneration. *Biosensors and Bioelectronics*, 141, 111481.

Zhao, Y. F., Qiao, S. P., ... **Acharya, A.**, ... Nie, Y. (2017). Modulating three-dimensional microenvironment with hyaluronan of different molecular weights alters breast cancer cell invasion behavior. *ACS applied materials & interfaces*, 9(11), 9327-9338.

## ACADEMIC PRESENTATIONS

Peng Ren, Wenyang Zhou, Pingping Wang, **Alaka Acharya**, Siyang Li, Qinghua Jiang, Xia Liang. (2019). Transcriptional Pattern behind Functional Connectivity Change of BNM in Different Dementia States. *Conference Presentation at 25th Annual Meeting of Organization of Human Brain Mapping*, Rome, Italy.

**A Acharya**, X Liang, W Tian, C Jiang, Y Han, L Yi. (2018). Striatal dissociation along with functional and structural integrity affect cognition in svMCI. *Conference Presentation at 24th Annual Meeting of Organization of Human Brain Mapping*, Singapore.

**A Acharya**, X Liang, W Tian, C Jiang, Y Han, L Yi. (2017). Shared and divergent striatal network connectivity changes in aMCI and svMCI. *Conference Presentation at 23rd Annual Meeting of Organization of Human Brain Mapping*, Vancouver, Canada

## RESEARCH / ACADEMIC PROJECTS (Excludes projects done for industry work)

### Voxel Based Morphometry and Functional Connectivity Analysis of Human Cerebellum, January 2019 – Present

Working to observe functional and structural changes in cerebellum and its relation with cerebellar cortex and basal ganglia. Part of PhD thesis.

### Structural and functional connections of basal ganglia in rat dementia model, May 2019 – Present

Working to find connections between basal ganglia nucleus and cortex in rat dementia model and correlations in behaviour. Part of PhD thesis.

### **Exploring structural and functional disruptions in MCI patients using multimodal neuroimaging techniques, July 2016 – December 2018**

Worked to evaluate WMHs and functional network connectivity of different BG subdivisions in patients with SVMCI and aMCI. Investigated how alterations of WMHs and network-level functional interactions of BG nucleus relate to episodic learning and memory deficits. Resulted in one publication and two conference presentations.

### **Mammographic Cancer Detection and Classification Using Clustering and Neural Network Classifier, October 2013 – September 2014**

Stage classification using probabilistic neural network based on the detection of cancer region  
Master's Thesis work

### **SKILLS AND CORE COMPETENCIES**

*Skills:* Medical Image Analysis, Functional Connectivity Analysis, General Data and Statistical Analysis, Experimental Design, Research Methods, Project Management, Scientific/Academic Writing  
*Languages and Tools:* AFNI, SPM, SPSS, Matlab, R, C, C++

### **ACADEMIC AND OTHER EXPERIENCES**

#### **Assistant Professor, April 2021 – Present**

Classes Taught: Medical Image Processing, Biomaterials, Tissue Device Interaction. Thesis/Project Advisor. **Editor-in-Chief**, Biomed Journal. **Department Head**, Biomedical Research and Development. *College of Biomedical Engineering and Applied Sciences, Purbanchal University, Kathmandu, Nepal*

#### **Assistant Professor / Adjunct Faculty, December 2021 – Present**

Classes Taught: Biomedical Instrumentation. *Department of Electrical Engineering, Pulchowk Campus, Institute of Engineering, Tribhuvan University, Nepal*

#### **Assistant Professor/Visiting Faculty, January 2022 – Present**

Classes Taught: Fundamentals of Biomedical Engineering. *Department of Electrical and Electronics Engineering, School of Engineering, Kathmandu University, Dhulikhel, Banepa, Nepal*

#### **Lecturer, December 2014 – August 2015**

Classes Taught: Biomaterials, Digital Signal Processing (Practical Component), Biomedical Instrumentation (Practical Component), Tissue Device Interaction. Thesis Advisor. *College of Biomedical Engineering and Applied Sciences, Purbanchal University, Kathmandu, Nepal*

#### **Lecturer / Adjunct Faculty, December 2014 – April 2015**

Classes Taught: Biomedical Instrumentation. *Janakpur Engineering College, Institute of Engineering, Tribhuvan University, Bhaktapur, Nepal*

#### **Sales / Service Engineer, May 2011 – June 2012**

Worked in Sales and servicing of medical equipment as a part of a team and also in individual capacity. *Alliance Healthcare Technologies Pvt. Ltd., Kathmandu, Nepal*

### **EVENTS, SEMINARS AND WORKSHOPS**

Presenter, *24th Annual Meeting of Organization of Human Brain Mapping*, Singapore. June 2018  
Attendee, *AFNI Advanced Bootcamp at Institute for Brain Research and Rehabilitation of South China Normal University*, by AFNI group, NIH, Guangzhou, China. December 2017  
Participant and Volunteer, *International Conference on Medical Materials, Devices and Regenerative Medicine (MMDRM)*, Kathmandu, Nepal. November 2008  
Participant, *National Conference on Medical Materials (NCMM)*, IIT-Chennai, India. December 2007

### **AWARDS**

HIT Star Award (Doctoral), Awarded for academic excellence among international doctoral students. *Harbin Institute of Technology*, 2018  
Chinese Government Scholarship Award, Full-ride scholarship towards a Doctoral degree, including a stipend. *PR China*, 2015  
Dr. Homi J Baba Scholarship, Full-ride scholarship towards a Master's degree, including a stipend. *Embassy of India*, 2012  
CBEAS best student award, Awarded in 5 semesters, Reimbursement of tuition fees awarded for academic excellence among fellow students, *College of Biomedical Engineering and Applied Sciences*, 2006-2010

Mahendra-Ratna Scholarship, Monthly stipend awarded for academic excellence nationwide in School Leaving Certificate (S.L.C) examination, Ministry of Education, Nepal Government, 2003  
Mahatma Gandhi Scholarship, Monthly stipend for academic excellence in SLC, Indian Embassy, 2003

### **EVENTS, SOCIAL INVOLVEMENT AND VOLUNTEERING**

Co-organizer, HIT Cultural Carnival 2016, 2017, 2018  
Member and Community Volunteer, Leo Club Nepal, 2009–2011  
Founder Member, Biomedical Engineers' Society Nepal, 2011–Present  
Member, Nepal Engineering Council, 2011-Present  
Member, Nepal Engineering Association, 2011-Present  
Founder Chairperson, Nepal Student's Union, CBEAS Wing, 2008–2010  
Winner, National level Debate competition by ANNFSU, Kathmandu, 2002  
Winner, More than a dozen elocution/debate competitions

### **LANGUAGES**

Fluent in Nepali, English, and Hindi; spoken Urdu.

### **REFERENCES**

#### **Dr Xia Liang**

Assistant Professor, Laboratory for Space Environment and Physical Sciences, Harbin Institute of Technology, Harbin, PR China  
[xia.liang@hit.edu.cn](mailto:xia.liang@hit.edu.cn)

#### **Dr Weiming Tian**

Associate Professor, School of Life Sciences and Technology, Harbin Institute of Technology, Harbin, PR China  
[tianweiming@hit.edu.cn](mailto:tianweiming@hit.edu.cn)

#### **Mr. Shekhar Khanal**

Assistant Professor, Vice Principal  
College of Biomedical Engineering and Applied Sciences, Purbanchal University, Kathmandu, Nepal  
[skhanal@biomedical.edu.np](mailto:skhanal@biomedical.edu.np)

#### **Dr V. P Shrivastava**

Professor, Founder Principal,  
College of Biomedical Engineering and Applied Sciences, Purbanchal University, Kathmandu, Nepal  
[principal@biomedical.edu.np](mailto:principal@biomedical.edu.np)