

Amiya Patanaik

Objective

To create groundbreaking products through fusion of engineering and science.

Education/Training

2014 – 2018

Duke-NUS Medical School, 8 College Road, Singapore

- Post.Doc. Cognitive Neuroscience

2010 – 2014

Nanyang Technological University, Nanyang Avenue, Singapore

- Ph. D. Computer Engineering *Adviser* : **Dr. Kwoh Chee Keong and Dr. Vitali Zagorodnov**

- Thesis Vulnerability to Sleep Deprivation: A Drift Diffusion Model Perspective.

2005 – 2009

Indian Institute of Technology, Kharagpur, India

- B. Tech. (Hons.) Energy Engineering *Adviser* : **Dr. Sudeshna Sarkar and Dr. Sarit Kumar Das**

- Thesis Open Domain Factoid Question Answering System.

Professional Experience

Feb 2018 –

Present

Fellow, *Entrepreneur First*, Singapore

- Building a start-up in the smart wearable space with the vision to enhance human cognition through integration of smart immersive technology with better physiological data analytics.

Aug 2014 – Jan

2018

Postdoctoral Research Fellow, *Duke-NUS Medical School*, Singapore

- Was involved in prediction of subject specific vulnerability to sleep deprivation using baseline behavioral and imaging data.
- Exploring statistical modeling and machine learning applications in neuroscience.
- Working on precisely timed stimulus presentation system for memory improvement.

Jan 2014 –

Present

Founder and Director, *Arkenstone Technologies Pvt. Ltd.*, Mumbai, India

- Arkenstone Technologies (www.arkenstonetech.com) is a start-up specializing in cross-platform mobile app development and financial analytics.
- Elements of Photography is our flagship product targeted towards photography enthusiasts. Launched in July 2013, it has had over 600,000 downloads at 4.2 average rating.

March 2014 –

Present

Technology Advisor and Director, *Sustainable Growth Initiative - Sec 25 Non Profit*, Delhi, India

- SGI is focused at providing energy data analytics to private organizations and Governments to guide their future energy planning and meet economic development goals in a sustainable manner.
- The non-profit is founded by experts in energy industry and planning.

June 2009 –
June 2010

System Integration Engineer, *Solar Semiconductor Pvt. Ltd.*, Hyderabad, India

- Invented state of the art solar direct pumps marketed under the trade name *Surya Ganga* that allows conventional centrifugal pumps to be powered directly by solar panels without the need of any storage devices.
- Lead-technical for development of SolarConnect, Solar powered cellular base stations. With advanced energy management and DG optimization logic, SolarConnect was the result of extensive research and field work.
- Lead designer (electrical) of 1MWp solar power plant at Sri City Nellore - India.
- Designed and implemented numerous small and mid-sized solar power plants throughout India in both on grid and off grid scenarios.

Teaching Experience

School of Physical and Mathematical Sciences, Nanyang Technological University

Teaching Assistant

Spring 2013

- Took tutorial and lab classes for advanced algorithm design and analysis using C++

Publications

- Patanaik, A., Ong, J.L., Gooley, J.J., Ancoli-Israel, S. & Chee, M.W.L. An end-to-end framework for real-time automatic sleep stage classification. *Sleep*, 2018, doi:10.1093/sleep/zsy041 (IF: 5.1)
- Ong, J. L., Patanaik, A., Chee, N. I., Lee, X. K., Poh, J. H., & Chee, M. W. Auditory stimulation of sleep slow oscillations modulates subsequent memory encoding through altered hippocampal function. *Sleep*, 2018, (in-press)(IF: 5.1)
- Wang, C., Ong, J.L., Patanaik, A., Zhou, H.J., & Chee, M.W.L. Spontaneous eyelid closures and dynamic connectivity states: linking connectivity to behavioral state. *Proceedings of the National Academy of Science*, 113.34 (2016): 9653-9658 (IF: 9.7)
- Patanaik A., Kwoh, C. K., Chua, E. C. P., Gooley, J. J., and Chee, M. W. L. "Classification of vulnerability to sleep deprivation using rested reaction time data", *Sleep*, 2015 (IF: 5.1)
- Patanaik, A., Zagorodnov, V., Kwoh, C. K., and Chee, M. W. L. Predicting Vulnerability to Sleep Deprivation Using Diffusion Model Parameters. *Journal of Sleep Research*, 2014. (IF 3.8)
- Patanaik, A., Zagorodnov, V., and Kwoh, C. K. Parameter estimation and simulation for one-choice Ratcliff diffusion model. *Symposium On Applied Computing ACM SIGAPP*, 2014, in press (AR 24%)
- Bhalerao, A., Patanaik, A., Anand, S., and Saravanan, P. Robust detection of microaneurysms for sight threatening retinopathy screening. In *Computer Vision, Graphics & Image Processing*, 2008. *ICVGIP'08. Sixth Indian Conference on*, pp. 520-527. *IEEE*, 2008 (AR 12%)

Patents

- Patanaik, A., Chee, M.W.L., Lee, J.Y., Ong, J.L. Determining Sleep Stages. Duke-NUS Medical School., assignee. PCT Filing No.: 10201608507P, 2016
- Patanaik, A., Posannapeta, G., Gariki, G., and Shroff, P. Systems and Methods for Operating a Solar Direct Pump. Solar Semiconductor, Inc., assignee. Patent US20120326649 A1, 2012.

Abstracts

- Patanaik, A., Tandil, J., Ong, J.L., Wang C., Zhou, J., Chee, M.W.L. Behavioural predictions of fMRI connectivity fluctuations in Well-Rested Adolescents. Organization for Human Brain Mapping, 2018.
- Tandil, J., Ong, J.L., Patanaik, A., Chee, M.W.L. Effect of a nap on resting state functional connectivity following a night of sleep restriction. Organization for Human Brain Mapping, 2017.
- Ong, J.L., Patanaik, A., Chee, N.I.Y.N., Lee, X.k., Poh, J., Chee, M.W.L. Effects of acoustic stimulation during a nap on encoding-related activity. Organization for Human Brain Mapping, 2017.
- Patanaik, A., Poh, J., Ong, J.L., Wong, K.F., Shanmugam, V.K., Chee, M.W.L. Predicting vulnerability to sleep deprivation by integrating an information accumulation model with fMRI. Organization for Human Brain Mapping, 2016.
- Wang, C., Ong, J.L., Patanaik, A., Chee, M.W.L., Zhou, J. Dynamic coupling between functional connectivity and eye closure following sleep deprivation. Organization for Human Brain Mapping, 2015.
- Tandil, J., Ong, J.L., Patanaik, A., Poh, J., Lo, J., Chee, M.W.L. Effects of Sleep Restriction on resting State Functional Connectivity in Adolescents. Organization for Human Brain Mapping, 2015.
- Patanaik, A., Tandil, J., Ong, J.L., Poh, J., Lo, J., Chee, M.W.L. Functional Connectivity During Rested Baseline Is Associated With Vulnerability To Sleep Deprivation. Organization for Human Brain Mapping, 2015.
- Patanaik, A., and Zagorodnov, V. Connectivity between visual resting state networks predicts vulnerability to sleep deprivation. Organization for Human Brain Mapping, 2012.

Honors & Awards

2010-2014	Nanyang Technological University Research Scholarship, NTU.
2010	Best employee of the year CEO Excellence Award, Solar Semiconductor Pvt. Ltd.
2009	Best undergraduate project award - Systems Society IIT Kharagpur.
2008	Best paper special mention award - ICVGIP conference IEEE.
2005	All India rank 1641 in IIT, Joint Entrance Examination out of 200 000 students who appeared for the exam.
2002,2004	Qualified twice for KVS Jawhar Lal Nehru National Level Science Exhibition and Congress.

Computer Skills

Programming Fluency – C, C++, JAVA, LUA, PHP, Python

Working Knowledge – Bash shell, JS, HTML/CSS

Commercial Packages – MATLAB, SPSS, FSL, EEGLAB, Orange, Adobe Creative Suite, MS Office

References

contacts will be provided upon request.

- Assoc. Prof. Kwoh Chee Keong - Division of Software & Information Systems - School of Computer Engineering, Nanyang Technological University. Programme Director, MSc (Bioinformatics). Deputy Director, Biomedical Engineering Research Centre
- Prof. Michael Chee - Duke-NUS Graduate Medical School. Principal Investigator of the Cognitive Neuroscience Lab
- Dr. Vitali Zagorodnov - Formerly with Division of Visual Computing - School of Computer Engineering, Nanyang Technological University.
- Dr. Jatin Roy - Sr. Vice President - Research & Development - Solar Semiconductor Pvt. Ltd.