

Rudra Poudel

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Personal Profile

Experienced artificial intelligence, machine learning and computer vision researcher. Current research interests include efficient (less supervision, data and compute) learning in deep neural networks, causality, reinforcement learning and AI for social good.

Education

2010-2014 PhD in Computer Science, Bournemouth University, UK

Subjects: machine learning, computer vision
Thesis: 3D Hand Tracking

2008-2009 MSc in Evolutionary and Adaptive Systems, University of Sussex, UK

Subjects: computational neuroscience, neural networks, machine learning, computer vision

2001-2003 Masters in Business Studies, Tribhuvan University, Nepal

Subjects: management information systems, decision support systems

1997-2000 BSc in Computer Science, Tribhuvan University, Nepal

Subjects: computer science, maths, statistics

Employment History

Sep 2016 - Present Toshiba Research Europe, Cambridge, UK

Senior Researcher (Apr-2020), Researcher (Sep-2016)

- Research in machine learning, deep learning and reinforcement learning.
- PhD students supervision in Oxford and Cambridge universities.
- Research application targets: self-driving vehicles, robotics.

Sep 2014 - Aug 2016 King's College London, UK

Research Associate

- Research in machine learning and deep learning for medical image analysis.
- Supervision and examination of MSc thesis.

Sep 2013 - Jan 2014 Microsoft Research, Cambridge, UK

Research Intern

- Research in deep learning for hand pose estimation.

Apr 2010 - Oct 2010 Siemens Corporate Research, NJ, USA

Research Intern

- Worked in computer vision and medical image analysis.

Jul 2007 - Elvsys, Kathmandu, Nepal
Aug 2008 *Chief Architect- R&D, Co-Founder*

- R&D in big data analysis and data migration.
- Coordinated with international clients.

May 2000 - Kathmandu, Nepal
Jun 2007 *Software Engineer, Project Manager*

- Major responsibilities included system analysis and software development.
- Design and developed distributed poker game engine, ads analytics and more.

Teaching Experience

2003-2008 NCCS, Tribhuvan University, Nepal
Lecturer, Object Oriented Programming with C++

2006-2007 Sanker Dev Campus, Tribhuvan University, Nepal
Lecturer, Management Information System
Lecturer, Operations Management

2006-2007 Ace Institute of Management, Pokhara University, Nepal
Lecturer, Management Information System

Students

PhDs,

- Alasdair Paren, PhD in Oxford University, jointly supervised with Pawan Kumar (2018-).
- Anthony Hu, PhD in Cambridge University, jointly supervised with Roberto Cipolla (2018-).

Interns,

- Steven Morad, University of Arizona, 2020

Technical Skills

- **Programming Languages**
Python, C++, Matlab, C#, ASPnet, Java; SQL
- **Libraries / Tools**
TensorFlow, OpenCV, Torch ML, PCL

Entrepreneurship

- Jun 2007 - Nov 2011, Co-founder of Elvsys, Nepal, scaled it from 3 to 30 people company.

Funding/Awards

- Oct 2009 - Mar 2013, Bournemouth studentship for PhD, Bournemouth University, UK.
- Oct 2008 - Aug 2009, Chancellor's international scholarship for MSc, University of Sussex, UK.
- Jan 2002 - Jun 2002, Microhard scholarship for diploma in computer application, India.

Public Services

- Reviewer of International Journal of Computer Vision (IJCV): 2020.
- Reviewer of Pattern Recognition: 2020.
- Reviewer of IEEE Transactions on Image Processing: 2019.
- Reviewer of EURASIP Journal on Advances in Signal Processing: 2019.

- Reviewer of IEEE International Conference on Robotics and Automation (ICRA)- 2021.

Selected Presentations

1. *Fast-SCNN: Fast Semantic Segmentation Network*. British Machine Vision Conference (BMVC), Cardiff, UK, Sept 2019.
2. *ContextNet: Exploring Context and Detail for Semantic Segmentation in Real-time*. British Machine Vision Conference (BMVC), Newcastle, UK, Sept 2018.
3. *Artificial Intelligence for Humanity*. Artificial Intelligence for Development, Kathmandu, Nepal, April 2018.
4. *A Unified Framework for 3D Hand Tracking*. International Symposium on Visual Computing (ISVC), Crete, Greece, July 2013.
5. *Region-Based Skin Color Detection*. International Conference on Computer Vision Theory and Applications (VISAPP), Rome, Italy, Feb 2012.

Publications

Journals,

1. Steven D Morad, Roberto Mecca, Rudra PK Poudel, Stephan Liwicki, Roberto Cipolla. *Embodied Visual Navigation with Automatic Curriculum Learning in Real Environments*. In IEEE Robotics and Automation Letters, 2020.
2. James H Cole, Rudra PK Poudel, Dimosthenis Tsagkrasoulis, Matthan WA Caan, Claire Steves, Tim D Spector, Giovanni Montana. *Predicting Brain Age with Deep Learning from Raw Imaging Data Results in a Reliable and Heritable Biomarker*. In NeuroImage, 2017.
3. Rudra PK Poudel, Hammad Nait-Charif, Jian J Zhang, and David Liu. *Skin Color Detection Using Region-Based Approach*. In International Journal of Image Processing (IJIP), 2013.

Conference Proceedings and Pre-prints,

1. Rudra PK Poudel, Stephan Liwicki, Akihito Seki, Roberto Cipolla. *Fast-SCNN: Exploiting Deep Context and Shallow Details for Fast Semantic Segmentation*. In Under Review, 2021.
2. Rudra PK Poudel, Stephan Liwicki, Roberto Cipolla. *Fast-SCNN: Fast Semantic Segmentation Network*. In British Machine Vision Conference (BMVC), 2019. [Oral]
3. Rudra PK Poudel, Ujwal Bonde, Stephan Liwicki, Christopher Zach. *ContextNet: Exploring Context and Detail for Semantic Segmentation in Real-time*. In British Machine Vision Conference (BMVC), 2018. [Oral]
4. Rudra PK Poudel, Pablo Lamata, Giovanni Montana. *Recurrent Fully Convolutional Neural Networks for Multi-slice MRI Cardiac Segmentation*. In Medical Image Computing and Computer Assisted Interventions Conference (MICCAI) Workshop, 2016.
5. Rudra PK Poudel. *3D Hand Tracking*. PhD Thesis, Bournemouth University, UK, 2014.

6. Rudra PK Poudel, Jose A Fonseca, Jian J Zhang, and Hammaid Nait-Charif. *A Unified Framework for 3D Hand Tracking*. In International Symposium on Visual Computing (ISVC), 2013. [Oral]
7. Rudra PK Poudel, Hammadi Nait-Charif, Jian J Zhang, and David Liu. *Region-Based Skin Color Detection*. In Proceedings of the International Conference on Computer Vision Theory and Applications (VISAPP), 2012. [Oral]
8. Rudra PK Poudel. *Real-Time Hand Gesture Recognition for Low Resource Devices*. MSc Thesis, University of Sussex, UK, 2009.