# Sandeep Manandhar, PhD

*Curriculum Vitae*

## Profession

2020– **Postdoctoral Researcher**, *IBENS, ENS, Paris*, France.

- Video analysis via deep learning
- Image-2-Image translation applied to histopathological data
- Generative adversarial models for videos and images
- Human activity and emotion classification from videos

## Education

2016–2019 **Doctoral Degree**, *INRIA*, Université de Rennes 1, France.

**3D Motion esimtation and assessment in volumetric sequences**

- 3D PatchMatch
- 3D Variational Optical Flow
- 3D Image Structure Tensor Analysis

2014–2016 **Masters in Computer Vision and Robotics**, *University of Burgundy*, France.

- 3D Computer Vision
- Autonomous Robotics
- Machine Learning
- Medical Imaging

2007–2011 **Bachelor of Electronics and Communication**, *Tribhuwan University*, Nepal.

- Digital Electronics
- Control System
- Applied Mathematics
- Image Processing
- Computer Graphics

## Experience

2014 **Master's Student**, University of Burgundy, Le Creusot, France.

**Spectral Analysis of 3d Meshes with C++/OpenGL** youtube showcase here
**3D Scanning using weak structured light** youtube showcase here
**Computer Vision toolbox** youtube showcase here
**ROS: Navigation and Computer Vision/SMACH** youtube showcase here
**Myocardial Infarction detection with MRI images**
**Macular Degeneration detection from OCT images**
**Background subtraction and Tracking in image sequences**

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2015 **Summer Internship**, LJK/INRIA Rhone-Alpes, Grenoble, France.
**3D + t Laplacian Operator**
- Laplacian operator with spatial and temporal component
- As Rigid as possible deformation in mesh sequences
- Python/MATLAB, Meshlab, OpenGL

2016 **Master's Thesis**, LJK/INRIA Rhone-Alpes, Grenoble, France.
**Spacetime Spectral Mesh processing**
- Laplacian operator with spatial and temporal component
- Morphing of Manifold meshes
- Eigen decomposition and spectral analysis
- Python/MATLAB, Meshlab, OpenGL

2017 **Summer School**, VISUM, Porto, Portugal.
**Motion Analysis and Deep Learning**

2018 **Juniour Research Fellow**, UT Southwestern Medical Center, Dallas, USA.
Testing similarity measures in paradigm of 3D PatchMatch for sequences of MV3 cells and collagen in motion.

2011–2013 **Embedded Programmer**, Bes. Pvt. Ltd., Kathmandu, Nepal.
Designed Control System for an automated garage door opener

2009–2010 **ABU-ROBOCON 2010, CAIRO,EGYPT**, Robotics Club, Central Engineering campus, Pulchowk, Tribhuwan Univeristy.
- Embedded programmer
- Odometry
- Optical rotary encoders and accelerometers
- youtube showcase here

### Miscellaneous

2010–2013 **Freelancer**, *Processing 2.0*, microchip PIC16f877A, Autodesk 3ds Max.
- Water flow detection system in city supply
- 3D simulation of Rasuagadhi 100MW hydro electric project
- Audio Visualizer with Processing 2.0
- Augmented reality with Processing 2.0 and NyAR toolkit

## Awards

2007-2011 Golden Jubilee scholarship for undergraduate studies by the Indian Embassy of Nepal

2011 The best undergraduate project award for Multi Agent based Smart Wheelchair by the Nepal Telecom Authority

## Publications

Sandeep Manandhar, Irina Veith, Maria Carla Parrini, and Auguste Genovesio. SAVGAN: SELF-ATTENTION BASED GENERATION OF TUMOUR ON CHIP VIDEOS. IEEE International Symposium on Biomedical Imaging,2022

Sandeep Manandhar, Patrick Bouthemy, Erik Welf, Gaudenz Danuser, Philippe Roudot, Charles Kervrann. 3D Flow Field Estimation and Assessment for Live Cell Fluorescence Microscopy.Bioinformatics Oxford,2019

Sandeep Manandhar, Patrick Bouthemy, Erik Welf, Philippe Roudot, Charles Kervrann. *3D optical flow estimation combining 3D Census signature and total variation regularization*.IEEE International Symposium on Biomedical Imaging,2019

Sandeep Manandhar, Patrick Bouthemy, Erik Welf, Philippe Roudot, Charles Kervrann.A sparse-to-dense method for 3D optical flow estimation in 3D Light-Microscopy image sequences.IEEE International Symposium on Biomedical Imaging,2018

Victoria Fernández Abrevaya, Sandeep Manandhar, Franck Hétroy-Wheeler, Stefanie Wuhrer. A 3D+t Laplace operator for temporal mesh sequences. Computers and Graphics, Elsevier, Proceedings of SMI 2016

## Computer skills

Languages and Libraries: C, C++, PYTHON, OpenCV, Eigen, Matlab, Processing, Paraview, CImg, Pytorch, 3Ds Max, QT, Cmake, LaTeX

## Web Portfolio

Google scholar profile
Repositories with older source codes and Reports
New Repository
Inria Team Website
Current Team Website

## Languages

English **IELTS-7.5** *test taken on February 16, 2013*
French **Basic** *learning*
Nepali **Mother tongue**

## References

Auguste Genovesio: auguste.genovesio@ens.psl.eu
Patrick Bouthemy: patrick.bouthemy@inria.fr
Charles Kevrann: charles.kervrann@inria.fr