

N. V. KARTHEEK MEDATHATI

PhD student, NeuroMathComp project team, INRIA, Sophia Antipolis, France

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Education

PhD Student, *NeuroMathComp, INRIA, Sophia Antipolis, France* *Aug 2013 - present*

Topic : Developing biologically inspired models for optical flow estimation and motion perception.

Advisers : Prof. Pierre Kornprobst, INRIA, Sophia Antipolis, France.

Prof. Guillaume S. Masson, Institut de Neurosciences de la Timone, Marseille, France.

M.S. by Research — GPA 7.5/10.0 *Dec 2011*

Electronics and Communications Engineering, IIIT-Hyderabad, India.

Thesis : Towards understanding interest region detection and description in static images.

Adviser: Prof. Jayanthi Sivaswamy, IIIT-Hyderabad, India.

Bachelor of Technology (Honors) — GPA 6.76/10.0 *Jul 2009*

Electronics and Communications Engineering, IIIT-Hyderabad, India.

Research experience

Research Assistant, *NeuroMathComp, INRIA, Sophia Antipolis, France* *Feb 2013 - Jul 2013*

Topic : Simulated dynamic neural field model for motion direction perception using GPUs.

Adviser : Dr. Pierre Kornprobst.

Research Assistant, *School of Computing, National University of Singapore* *Jun 2012 - Dec 2012*

Topic : Developed programs for acquisition, calibration and light field rendering using a camera array.

Adviser : Prof. Michael S. Brown.

Consultant, *G.E Global Research, Bangalore, India* *Aug 2011 - Mar 2012*

Topic : Designed and Developed programs for analysis of 3D C.T Head Scans.

Manager : Dr. Bipul Das. *Mentor* : M. Ajay Narayanan.

Research Internship, *CVIT, IIIT-Hyderabad, India* *May 2009 - Aug 2009*

Topic : Developed programs for image quality estimation and restoration for retinal color fundus images.

Adviser : Prof. Jayanthi Sivaswamy.

Internship, *G.E. Global Research, Bangalore, India* *May 2008 - Jul 2008*

Topic : Developed programs for automatic anatomic labeling of neural vasculature in 3D C.T. Head Scans.

Manager : Dr. Srikant Surya Narayanan, *Mentor* : M. Ajay Narayanan.

Refereed Journal publications

N.V. Kartheek Medathati, H. Neumann, G. S. Masson and P. Kornprobst. “**Bio-inspired computer vision: Towards a synergistic approach of artificial and biological vision**”, in *CVIU*, 2016.

F. Solari, M. Chessa, N V Kartheek Medathati and P. Kornprobst. “**What can we expect from a classical V1-MT feedforward architecture for optical flow estimation?**”, in *Image Communication*, 2015.

K. S. Deepak, N. V. Kartheek Medathati and J. Sivaswamy. “**Detection and discrimination of disease related abnormalities based on learning normal cases**”, in *Journal of Pattern Recognition*, 2012.

Refereed International Conference proceedings

M. Chessa, N. V. Kartheek Medathati, G. S. Masson, F. Solari, P. Kornprobst. “**Decoding MT motion representation for optical flow estimation: an experimental evaluation**”, *EUSIPCO*, 2015.

N. V. Kartheek Medathati and J. Sivaswamy. “**Local descriptor based on texture of projections**”, in *Proc. of 7th Indian Conference on Computer Vision, Graphics and Image Processing*, Chennai, India, 2010.

B. Y. Babu, N. V. Kartheek Medathati and J. Sivaswamy. “**Robust matching of multi-modal retinal images using radon transform based local descriptors**”, in *Proc. of 1st ACM International Health Informatics Symposium*, New York, USA, 2010.

N. Dixit, N.V. Kartheek Medathati and J. Sivaswamy. “**Synthetic zooming of tomographic images by combination of lattices**”, in *Proc. of Nuclear Science Symposium (NSS/MIC)*, Orlando, USA, 2009.

Conferences with abstract submission

- N. V. Kartheek Medathati, A. I. Meso, G. S. Masson, P. Kornprobst, J. Rankin. “**Understanding the impact of lateral interactions on population tuning**”, *AREADNE*, Santorini, Greece, 2016.
- N. V. Kartheek Medathati, M. Chessa, G. S. Masson, P. Kornprobst, F. Solari. “**Adaptive Motion Pooling and Diffusion for Optical Flow**”, *MODVIS workshop at VSS*, Florida, USA, 2015.
- F. Solari, M. Chessa, N. V. Kartheek Medathati and P. Kornprobst. “**Benchmarking biologically inspired spatio-temporal filter based optical flow estimation on modern datasets**”, *ViiHM: EPSRC network for biological and computer vision*, Stratford-Upon-Avon, UK, 2014.
- C. Hilario, N. V. Kartheek Medathati, P. Kornprobst, V. Murino and D. Sona. “**A retina inspired descriptor for image classification**”, *ViiHM: EPSRC network for biological and computer vision*, Stratford-Upon-Avon, UK, 2014.
- N. V. Kartheek Medathati, J. Rankin, G. S. Masson and P. Kornprobst. “**Exploring the richness of center-surround dynamics: A bifurcation study**”, *Bardfest: Nonlinear dynamics and stochastic methods: from neuroscience to other biological applications*, Pittsburgh, USA, 2014.
- N. V. Kartheek Medathati, J. Rankin, P. Kornprobst and G. S. Masson. “**A Retinotopic neural fields model of perceptual switching in 2D motion integration**”, *Bernstein Conference*, Tuebingen, Germany, 2013.

Research Reports

- N.V. Kartheek Medathati, M. Chessa, G. S. Masson, P. Kornprobst and F. Solari. “**Adaptive Motion Pooling and Diffusion for optical flow.**”, *INRIA Research Report 8695*, 2015.

Patents

- B. Das, U. D. Patil, A. Narayanan, N. V. Kartheek Medathati, H. Surekha. “**System and method for Generating a Reference Plane of a Head**”, Application filed by G.E Global Research, 2014.
- N.V. Kartheek Medathati, K. Sai Deepak and J. Sivaswamy. “**A System for Generation of Generalized Moment Patterns**”, Application No. 3939/CHE/2010, 21, 2010.

Skills

- Programming and Scripting:** C, C++, Python, Matlab, HTML/CSS, Unix shell scripting
- Libraries and Tools:** Insight Toolkit (ITK), Visualization Toolkit (VTK), OpenCV, ARIA, Multisim, Magic (VLSI), PSpice, Nvidia CUDA
- Assembly Languages:** MIPS Assembly Language
- Operating Systems:** Windows, Linux

Academic achievements

- Dean’s Research List**, Spring 2009 (Dean’s Research list comprises of undergraduate students who have made significant contributions to research projects usually leading to publications.)
- First Prize**, Gizmo, an electronics design competition at Felicity, IIIT-Hyderabad’s annual technical/cultural festival, 2007.
- Secured All India Rank of **1571** out of **450 thousand** candidates in All India Engineering Entrance Examination (AIEEE), 2005.