

# Agniva SENGUPTA

## PERSONAL DATA

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ADDRESS: Bangalore, India  
PHONE: +91 8105179718  
EMAIL: [agniva@whodat.in](mailto:agniva@whodat.in)  
Personal: [i.agniva@gmail.com](mailto:i.agniva@gmail.com)  
GITHUB: [github.com/agnivsen](https://github.com/agnivsen)  
LINKEDIN: [linkedin.com/in/agniva-sengupta-b645473b](https://linkedin.com/in/agniva-sengupta-b645473b)  
STACKOVERFLOW: [stackoverflow.com/users/2041826/metsburg](https://stackoverflow.com/users/2041826/metsburg)

## TECHNICAL SKILLS

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Computer Vision and SFM	Multiview Geometry, SFM, Visual SLAM Bundle Adjustment, ICP, EKF based MonoSLAM  WORKED ON: PTAM, LSD SLAM, ORB SLAM, OKVIS, MSCKF, IMU + LSD-SLAM/ORB-SLAM fusion with EKF, Porting multiple Sensor Fusion suits for MAVs into mobile devices MINIMIZATION TECHNIQUES: Steepest Gradient, Gauss-Newton, Weighted Gauss-Newton, Levenberg-Marquardt FUNDAMENTAL MATHS: Linear Algebras, Probability + Statistics, Lie groups & algebras of $GL(n)$ , $SL(n)$ , $SO(3)$ , $SE(3)$ , $Sim(3)$
Robotics	PATH PLANNING: $A^*$ , $D^*$ Lite, Field $D^*$ , IDA*, Theta *, Dijkstra's Algorithm, Visibility Graph, Virtual Stretched String  STATE SPACE ESTIMATION: Particle Filter, Kalman Filter, EKF  PLATFORMS: Pioneer 3DX, Arducopter / Ardupilot Mega 2.6 (Arduino), PixHawk, A R Drone 2.0, SCORBOT, Parallax Boe-Bot, Lego Mindstorms Kit, ROS
Image Processing	Sweep and 360 panoramas, Thresholding, Segmentation, Morphology, Feature Recognition, Probability Density Function, Inpainting algorithms, Computational Photography, Background/Foreground modeling  LIBRARIES: OpenCV, NumPy/SciPy, Matplotlib, PCL
Machine Learning	PCA, SVD, Neural Network, CNN, Boosting and Bagging strategy, SVM, Linear and Logistic Regression, Polynomial Classifier, Decision Tree, Bayesian Classifier, Markov Chain
Programming Languages	C/C++, Python, MATLAB, R

## EDUCATION

JULY 2012 Master of Technology in MECHANTRONICS, [IIST, Shibpur, India](#)  
*summa cum laude* | Master's Theses in *Path planning for Mobile Robots*  
Advisor: Dr. S. N. SHOME, Dr. Ranjit RAY, Prof. Subhasis BHAUMIK  
GPA: 1606/2200 | [Detailed List of Exams](#)

AUGUST 2008 Bachelor of Technology in INFORMATION TECHNOLOGY  
*summa cum laude*, West Bengal University of Technology, India  
| [Detailed List of Exams](#)

## PUBLICATION

- Sengupta, Agniva, and E. Shafeeq. "New feature detection mechanism for extended Kalman filter based monocular SLAM with 1-point RANSAC" *Lecture Notes in Artificial Intelligence, Springer*. Mining Intelligence and Knowledge Exploration, 2015.
- Sengupta, Agniva, Ranjit Ray, and S. N. Shome. "Virtual Stretched String: An Optimal Path Planning Technique over Polygonal Obstacles" *Proceedings of Conference on Advances In Robotics*. ACM, 2013.
- Sengupta, Agniva. "Obstacle Avoidant Path Planning Using Probabilistic Genetic Algorithm With Adaptive Performance Optimization" *Recent Advancement in Mechatronics Automation. BESUS, Shibpur, Howrah : s.n., 2011*.

## WORK EXPERIENCE

DEC 2016 TO PRESENT	PhD Student at <a href="#">INRIA, RENNES</a> , France <i>Localization and characterization of deformable objects with unknown shapes</i>
NOV 2015 TO DEC 2016	Computer Vision Research Engineer at <a href="#">WHODAT TECH PVT. LTD.</a> , Bangalore, India <i>Working on Visual SLAM, camera localization and SFM for Markerless Augmented Reality applications</i>
AUG 2014 TO NOV 2015	Senior Design Engineer at <a href="#">KRITIKAL SOLUTIONS PVT. LTD.</a> , Bangalore <i>Working for <a href="#">Continental Automotives</a> in Advanced Driver Assist Systems</i> Machine Learning and Image Processing for Sign Recognition Systems
MAY-AUG 2014	Hybrid Data Analyst at <a href="#">AYATA</a> , Calcutta, India <i>Descriptive Analytics and Machine Learning</i> Analysis and classification of video and seismic data from Oil and Gas industry
FEB 2013 - MAY 2014	Engineer at <a href="#">TECH BLA SOLUTIONS PVT. LTD.</a> , Calcutta, India Computer Vision for mobile devices, control system for quadrotors.
JUL 2009 - AUG 2010	Software Engineer at <a href="#">ACCENTURE SERVICES PVT. LTD.</a> , Bangalore, India Data Analysis of Network Traffic