

Vaibhav Agarwal

Computer Science and Engineering – IIT Kharagpur

✉ vaiagarwal96@gmail.com • 🌐 <http://cse.iitkgp.ac.in/vaibhavagarwal/>
🔗 VaibhavAgarwalVA • ✉ vaiagarwal96@iitkgp.ac.in

Educational Qualifications

Bachelor of Technology : Indian Institute of Technology Kharagpur - CGPA: **8.6/10.0** July'14-Present
Senior Secondary - CBSE : Mahatma Hansraj Modern School, Jhansi - Overall percentage: **95.4%** 2014
Secondary - ICSE : Christ the King College, Jhansi - Overall percentage: **94%** 2012

Interests

Algorithms and Graph Theory Data Analytics Networks Artificial Intelligence

Projects

- **Positioning System using Bipartite Matching and Voronoi Diagrams** May'2016-July'2016
Indian Institute of Technology Kharagpur, under Prof. Jayanta Mukhopadhyay
 - Created a positioning module for humanoid robots using computational geometry concepts of Voronoi Cells and Delaunay Triangulations.
 - Created a role matching module which uses maximum bipartite matching (Hungarian Algorithm) to allot the generated positions to suitable bots dynamically.
 - Integrated successfully. Increased the time efficiency of the code by 30% of the previous implementation, using constant memory.
 - The team (including me) participated in 3D Simulation League at RoboCup 2016, Germany.
- **Path Planning module for differential drive robots** May'2015-July'2015
Indian Institute of Technology Kharagpur, under Prof. Jayanta Mukhopadhyay
 - Created a path planner for differential drive soccer playing robots using Dynamic Window Algorithm.
 - Obtained successful results, decreasing the slip parameter to less than 1%.
 - The implementation was successfully integrated and the team won the Bronze medal for IIT Kharagpur at FIRA 2015, South Korea.
- **Data extraction from a 2-D plot** OpenSoft competition, IIT Kharagpur Feb'2016-Mar'2016
 - Created a module to extract graph information from a plot and create the corresponding data table using OpenCV libraries and Tesseract.
 - The implementation was successful in more than 80% of the cases, including dashed lines and discontinued plots. The extraction module was also used to extract out the legend box from the plot.
- **Line follower robot** Robotics workshop at IIT Kharagpur Dec'2014
 - Attended a workshop organised by IEEE and Technology Robotix Society, IIT Kharagpur aimed to create an autonomous line follower robot.
 - Worked on techniques to build the robot and subsequently, coded the algorithm using DFS traversal to cover the entire grid of lines, using Atmel Studio.
- **Back-end development of Online Game** Kharagpur Game Theory Society Jan'16-Mar'16
 - Contributed to the development of an online game for a flagship contest of KGTS, IIT Kharagpur.
 - Created modules in php using CodeIgniter framework.
 - The game witnessed a participation of over 1000 participants from IIT Kharagpur, Delhi University and IIM Rohtak in a 2-day event.
- **Online sales portal** Software Project, Prof. Partha Pratim Das, IIT Kharagpur Mar'2016
 - Created a software in Java which allows users to buy and sell items to different users.
 - The user can perform administrative roles on his profile and history log, as well as interact with other users through messaging.
 - Awarded with an "Exceptional" grade in the project work.

Achievements and Scholarships

- All India Rank **217** in Joint Entrance Exam (JEE) Advanced 2014 among 150,000 candidates. 2014
- All India Percentile **99.99** in Joint Entrance Exam (JEE) Mains 2014 among 1.5 million candidates. 2014
- ACM ICPC Asia Amritapuri Regional Finalist. 2015
- Member of Bronze winning team at Federation of International Robosoccer Association 2015, South Korea. 2015
- Represented IIT Kharagpur in RoboCup 2016 held in Leipzig, Germany. 2016
- Kishore Vigyanik Protsahan Yojana (KVPY) Scholar, Dept of Science and Technology, Govt of India. 2013
- National Talent Search (NTSE) Scholarship awardee, by NCERT, Govt of India. 2010
- National top 300 in National Standard Examination in Physics and Chemistry. 2013-14
- Aditya Birla Group Scholarship shortlist, amongst top 32 IIT freshmen. 2014
- Goralal Syngal Scholarship at IIT Kharagpur for outstanding academic achievements. 2014-15

Work and Volunteer Experience

- **Algorithmic Game Theory Society, Head** *IIT Kharagpur* Jan'16-Present
 - Organise and deliver classes to freshers and sophomores interested in algorithmic game theory.
 - Provided questions and game design to the parent team of Kharagpur Game Theory Society, for its flagship contests Nashify 2015 and 2016; Both events saw the participation of over 200 participants from IIT Kharagpur.
- **Image Processing Workshop, Mentor** *Organised by IEEE and Texas Instruments* Dec'2015
 - Mentored a batch of more than 50 freshers in the image processing workshop.
 - Taught the freshmen basic image processing algorithms and techniques.
- **Secretary** *Code Club, IIT Kharagpur* July'14-Present
 - Problem setter and tester at CodeNites, the fortnightly programming contest in IIT Kharagpur.
 - Conducted algorithms and data structures class for freshers. Over 100 students attended the 15-day class.
 - Organised Bitwise 2016, which saw the participation of over 1000 participants from across the globe.
- **Case Study Team, Sub Head** *Meghnad Saha Hall, IIT Kharagpur* Jan'16-Present
 - Participated in the inter-hall Case Study competition 2016 and won the First prize.
 - Suggested a present scenario and future directives to tackle the problem statement using SWOT analysis.
- **Volunteer** *IIT Kharagpur*
 - Alumni Cell - Volunteer at the 12th Annual Alumni Meet at IIT Kharagpur attended by over 200 alumni.
 - Spring Fest - Member of the advertising team of Spring Fest. Created a road-map for advertising sponsors over the entire campus. Note, Spring Fest is one of the largest cultural fests in Asia.

Technical Skills

Programming Languages	C/C++, Java, Python, C#, PHP, x86 Assembly
Operating Systems	Ubuntu, Microsoft Windows
Utilities	Git, GDB, Shell, \LaTeX , Docker

Relevant Courses

Algorithms 1	Algorithms 2 *	Graph Theory *
Software Engineering	Automata Theory	Compilers *
Computer Organization *	Discrete Structures	Data Structures
Switching Circuits and Logic Design	Probability and Statistics	* denotes ongoing courses

Miscellaneous

- Sporadic blogger at my blog <http://iitiantheoryoflife.blogspot.in>.
- Occasional contributor to Open Source and self projects on Github <https://github.com/VaibhavAgarwalVA>.
- Vice Captain of the Maths Olympiad team of MS Hall. Winner of Open IIT Maths Olympiad 2015 and Freshers Maths Olympiad 2014 organised by Technology Students' Gymkhana, IIT Kharagpur.
- Winner at several competitive programming contests in IIT Kharagpur.