PRANAV KULKARNI

Contact Information	Room No. 223, Hostel No. 2, IIT Bombay Powai, Mumbai - 400076, India	Phone: +91-8805540900 pranav.dk212@gmail.com	
Research Interests	Digital Signal Processing, Image Processing, Wavelets, RADAR Imaging, Computer Vision, Machine Learning		
Education	 Indian Institute of Technology Bombay, Mumbai, India Bachelor of Technology, Electrical Engineering, <i>Expected:</i> Summer 2019 Cumulative Performance Index (CPI): 9.66/10.00 Pursuing Minor in Computer Science and Engineering and Honors in Electrical Engineering 		
Research Experience	 Generalisation of Fractional Fourier Transform Guide: Prof. Vikram M. Gadre, IIT Bombay Developing properties of Generalised Time Frequency Transfor Aperture RADAR Imaging Reviewed the existing literature about Fractional Fourier Transform Eigenvalue and Eigenfunction based approaches for generalisation 	May 2017 - Present orm with application in Synthetic ansform, its properties and different ation	
	 Studied and extended the results to develop properties of the recently proposed Generalised time frequency Transform - GTFT by the professor Learnt and simulated on MATLAB parameter estimation and separation of noisy mixture of linear and quadratic chirps using FrFT and GTFT respectively Simulated on MATLAB data acquisition of SAR Synthetic Aperture RADAR for simultaneous detection of range and velocity of moving targets using GTFT 		
	 Touchless Fingerprint Biometric System Nov 2016 - Apr 2017 Guide: Prof. Vikram M. Gadre, IIT Bombay Developed an innovative Biometric Identification system for mobile phones Studied about fingerprint features, recognition, template extraction and matching techniques and comparatively studied of accuracy in identification of touch based and touchless fingerprints Developed an Android App for smart phones that can enroll, verify and identify fingerprint image taken form device camera or the fingerprint device attached to mobile Built a centralised database and matching system on a server accessible by multiple devices In process of submitting findings through a research paper to Elsevier Bioinformatics Journal 		
Technical Projects	ICAL Semi-Autonomous Carrom Playing Bot May 201 CTS ITSP - Institute technical Summer Project, Electronics Club, IIT Bombay • • Built a robot which analyses position of single coin placed on board and plays the earner of the second code for image processing in python - OpenCV to detect position of coins a • • Controlled stepper motors by Raspberry-pi for positioning and DC motor for hitting • •		
	 Crowd management by Simulation Jun 2011 - Apr 2012 Google Science Fair Project studied about the flow of granular material, crowd dynamics, crowd simulation and self organization theory for the project, with possible applications for traffic and sewage Modelled crowd by pearls passing through holes, hypothesised and studied the dependence of locking ofpearls and time to pass on hole parameters such as shape, size and partitions 		
Selected Course Projects	Hospital Management SystemMar 2017 - Apr 2017Guide:Prof. Ganesh Ramkrishnan, IIT BombayData Structures and Algorithms Course• Developed an interactive Database Management System of the patients of a General Hospital• Implemented efficient data structures like 2D hashmap, tries, queues and algorithms such as BFS• All operations are with O(1) time complexity; stores and searches records of patients efficiently		
	 Speed control of DC motor using PWM Guide: Prof. Mahesh Patil, IIT Bombay Devised a digital circuit for generating a Pulse Width Modula 	Mar 2016 - Apr 2016 Digital Electronics Course ation signal with variable duty cycle	

• Controlled speed of DC motor using PWM through transistors in Darlington mode

 $1 \ {\rm of} \ 2$

00 om

Curriculum vitae

- of
 - e

	Saline Level Detector for Hospital Guide: Prof. Anil Kottantharavil, IIT Bombay	Oct 2016 - Nov 2016 Electronics Devices Lab
	 Devised an analog circuit with alarm indicator using phototransistor and Tuned circuit parameters for ensuring excitation varies significantly when 	diodes for saline indicator a saline is below threshold
Scholastic Achievements And Awards	 Currently ranked 3rd amongst 135 students of electrical engineering department Received Undergraduate Research Award, IIT Bombay for astounding Research work Awarded the exceptional performance grade (AP) in Data Analysis and Interpretation course Secured All India Rank 68 among 1.5 million candidates in Joint Engineering Examination JEE Mains and All India Rank 456 among 150,000 candidates in JEE Advanced, 2015 Awarded the prestigious Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship in 2014, with Rank 162 across the nation by Department of Science and Technology, Govt. of India Received National Talent Search Examination scholarship, 2011 for being in top 1000 students among 500,000 candidates by Department of Science and Technology, Govt. of India 	
Key Courses	• Electrical Engineering: Communication Systems [†] , EM Waves [†] , Micr Systems, Probability and random Processes [†] , Information Theory and Digital Systems, Network Theory, Data Analysis and Interpretation, Elec and Power Electronics [[†] - To be	coprocessors [†] , Signals and Coding, Analog Circuits, ctronic Devices, Machines <i>e completed by Nov 2017.</i>]
	• CS and Mathematics: Digital Image Processing [†] , Data Structures a Learning(Coursera, Stanford University), Computer Networks, Com Utilisation, Calculus, Linear Algebra, Partial Differential Equations, Co	and Algorithms, Machine puter Programming and omplex Analysis
Technical Skills	 Languages: C, C++, Java, Python, VHDL, Assembly, HTML, LATEX, R Packages: MATLAB, OpenCV, Android Studio, Ngspice, Git, Quartus, AutoCAD, SolidWorks Hardware: CPLD (Altera MAX V), Intel 8051, Arduino, Raspberry Pi 	
Positions of Responsibility	 Teaching Assistant, Calculus MA 105 Conducting weekly tutorials for 50 first year undergraduate students Responsible for teaching, evaluating and helping students with basic contract of the students of the students with basic contract of the students with	Jul 2017 - Present encepts of Calculus
	 Technical Councilor, Hostel 2 IIT Bombay Head of the 3 member Technical Council and member of core council resp Responsible for conducting inter hostel technical competitions, events for 	Jun 2017 - Present ponsible for hostel welfare or boosting tech culture
	 Events Coordinator, Techfest Asias largest science and te Responsible for the execution of Techfest Exhibitions with tech exhibits Assisted in the PAN India Diabetes Campaign CURED aiming a Guine Single-handedly managed a 3 day workshop on Data Analysis during the 	echnology festival 2016-17 s from all over the world ness World Record ne festival
Co-curricular activities	 Technical Activities: Secured 2nd position in Science Quiz and attended Summer Program Jayant Naralikar at Inter-University Centre for Astronomy and Astroph Built a Line Follower Bot implementing PID algorithm under Robotics Successfully built a Remote Controlled Plane from scratch under Aeroci Studied about energy conservation and alternative energy generation in hotel waste, oil from MWS) being a part of school special interest group 	n under guidance of Dr. nysics IUCAA Club, IITB lynamics Club, IITB nethods (like pellets from p
	 Sports: Hostel Special mention for securing Gold Medal twice in Chess General Won Bronze medal in Kho-Kho General Championship, attended camp of 	Championship f Inter IIT Team selection
	 Miscellaneous: Qualified Prarambhik and Praveshika exams of Classical Music by Gan Ranked 2nd in life essential skills enrichment program involving 14 skill making, marketing, elocution, recitation, reasoning skills, hand weaving Completed training for Resuscitation first aid from Astitva Lifesaving 	dharva Mahavidyalay s like speed reading, note g, pottery Training & H.R.S. India