

## Vijay A. Kanade

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### Education

**D. Y. Patil College of Engineering and Technology, Kolhapur, Maharashtra, India**, [B.E in Computer Science & Engineering - Class of 2013], GPA: 3.3/4

### Research

#### ➤ IoT Research

- Voice-Magstripe [V-M]\*: A Novel Prototype of A Graphene-based Multifunctional ‘IoT’ Device
- M+: A Novel IoT Device for Reducing the Physiological & Psychological Effects of Noise Pollution on Humans
- A Novel Method for Embedding Multiple Video Frames into A Single Video Stream by Utilizing Genetic Algorithm
- A Novel IoT Device for Optimizing ‘Content Personalization Strategy’
- A Wearable Neck-Band for Creating Personalized Secure Space
- rSense: A Novel Gesture-Based Human Assistive Device
- Design and Implementation of SmelloT Architecture to Realize and Transmit Electrified Smell [**Manchester, Great Britain**]

#### ➤ Bio-Medical Research

- Light Coded Language (LCL): Infrared Thermography based Interactive Touch Sensing 3D Display for Medical Applications - [**MIT, Massachusetts, USA**]
- A Novel Non-Invasive Approach for Diagnosis of Medical Disorders based on De Broglie’s Matter Waves & Water Memory
- A Bio-Acoustical Perceptual Sense for Early Medical Diagnosis & Treatment
- A Novel Therapeutic Treatment Strategy for COVID-19 Patients [**WHO**]
- An Approach to Develop Sensory Substitutions for Individuals with Sensory Impairments
- Bio-Optics: Blood Type Determination based on Image Processing Techniques by utilizing an Optical Sensor Device

#### ➤ Optics Research

- Evolutionary Optimization of Spatial Light Modulator for Advanced Wavefront Control in an Optically Addressable ‘Electric See-Through Skin
- A Novel Repair & Maintenance Mechanism for ‘Integrated Circuits’ of Ubiquitous IoT Devices by Performing Virtual IC Inspection based on ‘Light Field Technology’
- A Novel Optimized Design of Energy Efficient Lights for Producing Uniform Illumination by Harnessing Photoluminescent Properties of Strontium Aluminate\* - [**Cambridge, U.K.**]
- A Novel Method for Pathogen Detection by Using Evanescent-Wave based Microscopy [**WHO**]
- Organic Optical Data Storage for Securely Safeguarding IoT Secrets
- A UAV-Based Ad-Hoc Network for Real Time Assessment and Enforcement of Vehicle Standards in Smart Cities

#### ➤ Wireless Technology Research

- A Novel Method for Enabling Wireless Communication Technology in Smart Cities
- Audio-Internet [A-I]: A Novel Technique for Streaming [Bits-over-Sound]
- Wi-Fi Networking: A Novel Method for Stabilizing Internet Connectivity by Optimizing Wi-Fi Router Configuration
- A Novel Approach to Transmit Audio Content over a Secure Communication Channel by Using Light Optics under the Acousto-optic Premise [**Manchester Metropolitan University, U.K.**]
- BioFi: Enabling Sustainable IoT Connectivity with BioFibre-Based Wireless Signal Enhancer [**Columbia University, USA**]
- A Sustainable Antenna Design to Enhance Precision Beamforming Capabilities

#### ➤ Bio-Inspired Computing Research (AI)

- A Bio-Inspired Unsupervised Algorithm for Deploying [BoT] - [UCSB, California, USA]
- A Hybrid Evolutionary Algorithm for Evolving A Conscious Machine
- Insect-Inspired Advanced Visual System for AI-Based Aerial Drones

- Generative AI

- Self-Reflective AI Agent for Scientific Hypothesis Generation with Local LLMs
- Synthetic Ethical Dialectics Engine (SEDE): An Integrated Approach to AI Governance and Ethical Decision-Making in a Multi-Agent System

- Ophthalmic Research

- A Light Modulating Therapeutic Wearable Band for Vision Health
- The Light-Field Stereoscope: Wearable Contact Lenses Capturing 3D Scenes based on Eye Movement Detection

- Brain Computer Interface (BCI) Research

- The “Placebo / Nocebo effect”- Learning the Impact of Positive / Negative Emotion (s) on the Physiology of Human Cells

- Space Research

- NeuroG: An Adaptive Neuro-Engine for ‘Dynamic Space-Junk Removal’ Mission - [NUS, Singapore]

- Software Research

- A Novel Method for Optimizing Data Consumption by Enabling A Custom Plug-In

- Forensic Science Research

- Evolutionary Computation of Facial Composites for Suspect Identification in Forensic Sciences
- A Passive Infrared-Based Technique for Long-Term Preservation of Forensic Evidence

- Blockchain Research

- Securing Drone-based Ad Hoc Network Using Blockchain
- A Blockchain-Based Distributed Storage Network to Manage Growing Data Storage Needs
- A Blockchain-Based Ad-Hoc Network to Provide Live Updates to Navigation Systems

- Environmental Science

- A ML-Based Model to Quantify Ambient Air Pollutants
- A Symbiotic Model for Accurate Weather Forecasting
- ChloroView: A Sustainable Biophilic Alternative to Conventional Displays [Central Michigan University, USA]
- A Green-Energy Based ‘Hydroponic Charging System’ to Power Digital Devices
- A Plant-Inspired Organic Photovoltaic Cell
- A Plant-Inspired Alternative to Conventional Memory System Design

- Theoretical Physics Research

- The Scientific Conceptualization of Time dilation
- The Dynamics of Time: Gravity, Light, and the Observer's Perspective
- Exploring the Foundations of Consciousness: Nature's Enduring and Fluid Intelligence in its Purest Form

- DNA Research

- DNA Manipulation by Artificial Mechanism of Rupturing the H2 Bonds of the Base Proteins for Humans with Higher Immunity

- Electronics Research

- Conceptual Design of a Universal Wireless Battery Charger based on Induced EMF in a Standard TRS Connector

- Nanotechnology Research

- Nanotechnology-Enabled Energy [R]evolution: Nanoscale Design of a Flexible Smart-Membrane for Harnessing Free Sources of Energy

- Miscellaneous (Research Articles)

- Essence of Research
- Artificial Intelligence - The Digital Mind
- Invincible Competence of Human Brain

## Books

- Artificial Intelligence in Medical Imaging Technology (Publisher: **Springer**)  
*Euclid Seeram, Vijay Kanade*

## Invited Speaker

- **Skyline Space**, an official space tutor partner of **ISRO & IN-SPACe**  
Space Sustainability: Tackling Space Debris (World Space Week, October 2024)  
*Vijay Kanade*
- **VCA Education Solutions for Health Professionals Inc.**, is a Canadian Company based in Toronto. It organizes education days, workshops, courses, and seminars for healthcare professionals on diverse topics such as inter-professional collaboration, wellbeing in the workplace, patient safety, information technology and health, pain management, and so on.  
Artificial Intelligence for Imaging Technologists – Live Webinar (September 2025)  
*Euclid Seeram, Vijay Kanade*
- **Advocate Maral Erol – Ankara Bar Association, Ankara, Turkiye.**  
From Mars to the Moon: AI, Living In Space and the Legal Framework (World Space Week, October 2025)  
*Maral EROL, Vijay Kanade*

## Collaborations

- **MoEP (Mars on Earth Project, Turkiye): India Coordinator**  
Mars on Earth Project (MoEP) is the first Turkey-based Mars research project launched to raise awareness about space and manned/unmanned Mars studies and to lay the groundwork for future studies, targeting amateur scientists and students interested in space research and technologies.

## Experience

- Worked as '**Research Associate**' at **Brainchamber Technologies Pvt. Ltd (Research & Development), Kolhapur, Maharashtra, India.**  
Period: From 1<sup>st</sup> Jan, 2014 – 2<sup>nd</sup> May, 2014.
- Worked informally as a '**Visiting Research Student**' at **Raman Research Institute, Bangalore, India**  
Period: 25<sup>th</sup> June, 2014 – Nov, 2014.
- Worked as a '**Patent Analyst**' at **IPpro Services India Pvt. Ltd, Bangalore, India.**  
Period: 1 year 4 months (5<sup>th</sup> Jan, 2015 – 29<sup>th</sup> April, 2016).
- Worked as a '**Research Associate**' at **Evalueserve SEZ (Gurgoan) Pvt. Ltd, Haryana, India.**  
Period: 2 years 1 month (1<sup>st</sup> Jan, 2017 – 31<sup>st</sup> Jan, 2019).
- Worked as a '**Senior Patent Associate**' at **StratJuris Partners (SJP), Pune, India.**  
Period: 15<sup>th</sup> Feb, 2019 – 5<sup>th</sup> Sep, 2020.
- **Founder & CEO** at **Alpha Singularity | R&D Lab**, registered under MCA, Govt. of India.

## Awards and Honors

- Felicitated with '**Dnyanadeep Puraskar**' in recognition of the research contributions in the field of science, by Shree Ravalnath Housing Finance Ajara (Multi-State), H.O. – Gadhinglaj, Maharashtra, India - December 2020.
- Winner of **InnoCentive Global COVID-19 Challenge (9934289)**, organized by **InnoCentive – A Wazoku Brand, Waltham, MA, USA** – December 2020.

- Honored with ‘**Young Researcher Award**’ at an International Research Event organized by **National University of Singapore (NUS), Singapore** on 17<sup>th</sup> September 2017.
- Contributor to **Global Research on Coronavirus (COVID-19) - WHO (2020)**
- Best Research Paper Awards: 12
- Won ‘**Best Research Paper**’ award at the ‘International Conference on Emerging Trends in Engineering, Technology & Architecture (iCETETA-2017)’, 11th March 2017.  
**Paper:** Voice-Magstripe [V-M]: A Novel Prototype of A Graphene-based Multifunctional ‘IoT’ Device  
**Venue:** D. Y. Patil College of Engineering & Technology, Kolhapur, Maharashtra, India
- Won ‘**Best Research Paper**’ award at the ‘International Conference on Innovative Research in Science, Technology and Management (ICIRSTM – 17), Organized by National University of Singapore (NUS), Singapore, 16 – 17 September 2017 (**Scopus**).  
**Paper:** NeuroG: An Adaptive Neuro-Engine for ‘Dynamic Space-Junk Removal’ Mission  
**Venue:** National University of Singapore (NUS), Singapore.
- Won ‘**Best Research Paper**’ award at the ‘International Conference on Adaptive Computational Intelligence (ICACI-2019)’, July 18-19th, 2019 (**Springer**)  
**Paper:** Light Coded Language (LCL): Infrared Thermography based Interactive Touch Sensing 3D Display for Medical Applications  
**Venue:** GSSS Institute of Engineering & Technology for Women, Mysuru, Karnataka, India.
- Won ‘**Best Research Paper**’ award at the ‘7<sup>th</sup> International Conference on Innovations in Computer Science and Engineering (ICICSE-2019)’, August 16 – 17, 2019 (**Springer**)  
**Paper:** A Bio-Acoustical Perceptual Sense for Early Medical Diagnosis & Treatment  
**Venue:** Guru Nanak Institutions Technical Campus, Ibrahimpatnam, Hyderabad, Telangana, India.
- Won ‘**Best Research Paper**’ award at the ‘2<sup>nd</sup> International Conference on Computer Networks, Big Data and IoT (ICCBi 2019)’, December 19 - 20, 2019 (**Springer**)  
**Paper:** A Light Modulating Therapeutic Wearable Band for Vision Health  
**Venue:** Vaigai College Engineering, Madurai, Tamil Nadu, India.
- Won ‘**Best Paper Presentation**’ award at the ‘3<sup>rd</sup> International Conference on Information Science and Systems (ICISS 2020), March 19 – 22, 2020 (**ACM**)  
**Paper:** A Novel Optimized Design of Energy Efficient Lights for Producing Uniform Illumination by Harnessing Photoluminescent Properties of Strontium Aluminate  
**Venue:** Cambridge, U.K.
- Won ‘**Best Research Paper**’ award at the ‘4<sup>th</sup> International Conference on Smart Computing And Informatics (SCI-2020), October 9-10, 2020 (**Springer**)  
**Paper:** Wi-Fi Networking: A Novel Method for Stabilizing Internet Connectivity by Optimizing Wi- Fi Router Configuration  
**Venue:** Vasavi College of Engineering (Autonomous), Hyderabad, Telangana, India
- Won ‘**Best Paper Award**’ at the ‘International Conference on Intelligent Computing and Applications (ICICA 2020), December 22-24, 2020 (**Springer**)’  
**Paper:** A Wearable Neck-Band for Creating Personalized Secure Space  
**Venue:** Government College of Engineering, Keonjhar-758002, Odisha.
- Won ‘**Best Paper Award**’ at the ‘2023 **IEEE** 14th Annual Ubiquitous Computing, Electronics & Mobile Communication Conference (UEMCON), 12th – 14th October 2023.’  
**Paper:** BioFi: Enabling Sustainable IoT Connectivity with BioFibre-Based Wireless Signal Enhancer  
**Venue:** Columbia University, New York, USA.
- Won ‘**Best Paper Award**’ at the ‘8th International Conference on Data Management, Analytics & Innovation, 19- 21 January, 2024 (**Springer**)’

**Paper:** A Sustainable Antenna Design to Enhance Precision Beamforming Capabilities.  
**Venue:** VIT, Vellore, India.

- Won **'Best Paper Award'** at the 'International Conference on Materials, Energy, Environment & Manufacturing Sciences, 20 – 21 December, 2024 (**Atlantis Press - Springer**)'

**Paper:** A Plant-Inspired Organic Photovoltaic Cell.

**Venue:** SMVITM, Udupi, India.

- Won **'Best Paper Award'** at the 'International Conference on Advanced Materials and Sustainable Technologies (ICAMST), 13 – 14 November, 2025 (**Springer**)'

**Paper:** A Plant-Inspired Alternative to Conventional Memory System Design.

**Venue:** NITTE Meenakshi Institute of Technology, Bengaluru, India.

➤ **Miscellaneous (Engineering)**

- Honored with **"Certificate of Excellence"** for being the **'Best Outgoing Student'** of the college (2013).
- National Level – **1<sup>st</sup> Prize** in on-spot Paper Presentation at BIMAT College, Kolhapur – 2011.
- National Level – **2<sup>nd</sup> Prize** in Paper Presentation at DYPCET, Kolhapur – 2011.
- National Level – **2<sup>nd</sup> Prize** in on-spot Paper Presentation at BIMAT College, Kolhapur - 2012.
- National Level – **'Letter of Appreciation'** for Paper Presentation at PICT, PUNE -2011.
- National Level – **2<sup>nd</sup> Prize** in Project Competition at K.E Society's RIT, an Autonomous Institute, Islampur – 2013.

**Other Interests**

- Athletics – Track & Field (Marathoner), Cricket, Music, Spirituality.