

## 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
- **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
- **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*

## 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 (Gurgaon) 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.

## 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: 10
- 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 University, 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.
- 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.