

Bharatesh Chakravarthi (PhD*)

✉ chakravarthi589@gmail.com | bc05@cau.ac.kr

🌐 <https://chakravarthi589.github.io/>




Summary

- Currently working as a research scholar and pursuing PhD (full time - *Final thesis submitted, defense scheduled, expected graduation - June 2022) at Virtual Environments Lab, GSAIM, Chung Ang University, Seoul. Prior to this, I have worked as assistant professor for five years at engineering institutes in Bengaluru, India. I hold master's degree in computer networks engineering. Bachelor's degree in information science and engineering.







Work Experience

- 2018 – Till date **Research Scholar**, Virtual Environments Lab, Department of CG/VR, GSAIM, Chung Ang University, Seoul, South Korea.
- Currently working as a research scholar and pursuing full time PhD - completed preliminary defense and thesis submitted.
 - Working on a research project "Proxemics based pervasive Interactions for the wide-area and high-speed serial motion recognition", supported by Institute of Information and Communication Technology Planning and Evaluation grant funded by the Republic of Korea government.
 - Have developed an indigenous human motion authoring and editing system.
 - Have involved continuously in research article publications and have attended several conferences and knowledge exchange programs.
 - Have made contributions to open-source projects (Github) such as Visualization Toolkit (VTK) supported by Kitware Technologies®
 - Have actively involved in research article reviews.
- 2021 – 2022 **Teaching Assistant [Online]**, for Data Visualization and Interpretation course of M. Tech Data Science and Engineering Program, WILP of BITS, Pilani, India.
- 2015 – 2018 **Assistant Professor**, Department of Information Science and Engineering, Jyothy Institute of Technology, Bengaluru, India.
- Immaculately led and coordinated a technical forum - "Graphics Day". Also, organized several technical talks, workshops and faculty development programs.
 - Have played a key role in developing and maintaining Jyothy Institute's official websites.
- 2013 – 2015 **Assistant Professor**, Department of Information Science and Engineering, APS College of Engineering, Bengaluru, India.
- Led and organized technical forum of ISE department - "Tech-Spark" and "SPARKUP-2014"
 - Worked as a placement co-ordinator at department of placement and training, and gained experience in conducting various on campus and pool campus drives.


Education

- 2018 – 2022  **Ph.D., Computer Graphics and Virtual Reality.**
Thesis title: *Human motion synthesis, editing, and validation.*
(Final thesis submitted, defense scheduled, expected graduation - June 2022)
- 2011 – 2013  **M.Tech. Computer Network Engineering.**
Thesis title: *"Interoperability between WiMAX and LTE".*
Got acquainted with Network Simulators (NS2 and NS3).
Secured First Class with Distinction. (74.25 %)
- 2007 – 2011  **B.E. Information Science and Engineering.**
Thesis title: *"Design and Implementation of an Energy aware routing protocol for Wireless Sensor Networks".*
Secured First Class. (64.5 %)

Skills






- Programming  C/C++, Java, python and R.
- SDK's/API's  VTK, Qt, Autodesk FBX, and Octave
- Tools  Tableau, Tableau Prep Builder, 3ds Max (Biped Animation).
- Hardware System  MoCAP System - Xsens MTw Awinda, Perception Neuron Arduino uno, Raspberry Pi.
- Databases  MySQL.
- Web Development  HTML, PHP, Javascript, FileZilla FTP Server.

Research Interest

-  Human computer interaction, Motion capture/estimation/tracking, Activity recognition, Motion analysis, Sensors, and Visualization.

Research Publications

Journal Articles

-  B. Chakravarthi, A. K. Patil, J. Y. Ryu, A. Balasubramanyam and Y. H. Chai, "Scenario-Based Sensed Human Motion Editing and Validation Through the Motion-Sphere," in **IEEE Access**, vol. 10, pp. 28295-28307, **2022**, doi: 10.1109/ACCESS.2022.3157939.
-  J. Ryu, A. K. Patil, B. Chakravarthi, A. Balasubramanyam, S. Park and Y. Chai, "Angular Features-Based Human Action Recognition System for a Real Application With Subtle Unit Actions," in **IEEE Access**, vol. 10, pp. 9645-9657, **2022**, doi: 10.1109/ACCESS.2022.3144456.
-  Patil, A.K.; Balasubramanyam, A.; Ryu, J.Y.; Chakravarthi, B.; Chai, Y.H. An Open-Source Platform for Human Pose Estimation and Tracking Using a Heterogeneous Multi-Sensor System. **Sensors** **2021**, 21, 2340. <https://doi.org/10.3390/s21072340>.
-  Patil, A.K.; Balasubramanyam, A.; Ryu, J.Y.; B N, P.K.; Chakravarthi, B.; Chai, Y.H. Fusion of Multiple Lidars and Inertial Sensors for the Real-Time Pose Tracking of Human Motion. **Sensors** **2020**, 20, 5342. <https://doi.org/10.3390/s20185342>
-  Balasubramanyam, A.; Patil, A.K.; Chakravarthi, B.; Ryu, J.Y.; Chai, Y.H. Motion-Sphere: Visual Representation of the Subtle Motion of Human Joints. **Appl. Sci.** **2020**, 10, 6462. <https://doi.org/10.3390/app10186462>

Research Publications (continued)

- Bharatesh Chakravarthi S. B., Prof. D. Jayaramaiah, 2013, Seamless Interoperability Across LTE And WiMAX Using Vertical Handover Mechanism, **IJERT June 2013** Volume 02, Issue 06.

Conference Proceedings

- A. Balasubramanyam, A. K. Patil, B. Chakravarthi, J. Ryu and Y. H. Chai, "Kinematically Admissible Editing of the Measured Sensor Motion Data for Virtual Reconstruction of Plausible Human Movements," 2021 IEEE International Conference on Systems, Man, and Cybernetics (SMC), **2021**, pp. 283-288, doi: 10.1109/SMC52423.2021.9658750.
- Chakravarthi, B., Patil, A.K., Balasubramanyam, A., Ryu, J.Y. and Chai, Y.H., **2020**. Sensed Unit Motion based Authoring for the Precise Human Movements. Korean Society of Mechanical Engineers Spring Conference, 2020.12, pp 1242-1247.
- D. Kim, B. Chakravarthi, S. H. Kim, A. Balasubramanyam, Y. H. Chai and A. K. Patil, "MotionNote: A Novel Human Pose Representation," 2020 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), **2020**, pp. 696-697, doi: 10.1109/VRW50115.2020.00199.
- Chakravarthi, B, Joseph, M., Shuai, C., Kim, S.H. and Chai, Y.H., 2019. Quaternions Based Intuitive Visualization for Tracking Weightlifting Exercises. The Korean Institute of Information Scientists and Engineers, **2019**, pp.1052-1054
- Patil, A.K., Chakravarthi, B., Kim, S.H., Balasubramanyam, A., Ryu, J.Y. and Chai, Y.H., **2019**. Pilot Experiment of a 2D Trajectory Representation of Quaternion-Based 3D Gesture Tracking
- Lohith J J and Bharatesh Chakravarthi S B, "Intensifying the lifetime of Wireless Sensor Network using a centralized energy accumulator node with RF energy transmission," 2015 IEEE International Advance Computing Conference (IACC), **2015**, pp. 180-184, doi: 10.1109/IADCC.2015.7154694.

Peer Review

Journals

- **Elsevier** - ISPRS Journal of Photogrammetry and Remote Sensing.
- **IEEE Access**.
- **Springer Nature** - BMC Musculoskeletal Disorders.
- **MDPI** - Remote Sensing, Sensors, Applied Science, Sustainability, Applied System Innovation, Vehicles, AI, Processes.

Conferences

- **IEEE** - ICECCME 2021.
- **ACM** - VRST 2021.

Invited Talk

- **Blockchain and Internet of Things**, AICTE Training and Learning (ATAL) Academy Sponsored Faculty Development Program, organized by Department of Computer Science and Engineering, UIT-RGPV, Bhopal, Madhya Pradesh, India on 31st July 2021.
- **Blockchain of Things**, AICTE Training and Learning (ATAL) Academy Sponsored Faculty Development Program, organized by Department of Computer Science and Engineering, BNMIT, Bengaluru, Karnataka, India on 18th January 2021.
- **Challenges and Research Directions for Blockchains**, AICTE Sponsored Faculty Development Program, organized by Department of Computer Science and Engineering, Sona College of Technology, Salem, Tamilnadu, India on 10th February 2021.

Invited Talk (continued)

- **Human Computer Interaction in Virtual Environments**, Faculty Development Program, organized by Department of Computer Science and Information Science Engineering, R R Institute of Technology, Bengaluru, Karnataka, India on 17th August 2020.
- **Mobile App Development using Android Studio - Hands-on Session**, Indian Society For Technical Education sponsored Student Development Program, organized by Department of Computer Science and Engineering, Sri Venkateshwara College of Engineering, Bengaluru, Karnataka, India on 24th February 2018.
- **IoT and its Applications**, Student Development Program, organized by Department of Computer Applications, Dr. Ambedkar Institute of Technology, Bengaluru, Karnataka, India on 1st March 2017.
- **Opportunities in the field of IoT**, Technical Education Quality Improvement Programme of Government of India Sponsored Student Development Program, organized by Department of Computer Science and Engineering, BMS College of Engineering, Bengaluru, Karnataka, India on 6th March 2017.
- **Programming and Application Development using Python**, Student Development Program Organized by Department of Computer Applications., Sir MVIT, Bengaluru, Karnataka, India on 11th March 2017.

Certifications

- 2022 **Google Data Analytics Professional Certificate**, Course certification authorized by Google® and Coursera.
- 2021 **Python Programming**, Course certification authorized by University of Michigan and Coursera.
First Step Korean and Learn to Speak Korean 1, Course certification authorized by Yonsei University and Coursera.
- 2018 **Advanced Android Development and Designing Thinking**, Certification authorized by Google®
- 2017 **Android Fundamentals Faculty Training**, Certification authorized by Koenig Solutions Ltd and Google®.
- 2015 **Intel HPC Code Modernization**, Certification authorized by Center for Development of Advanced Computing®.
- 2014 **Faculty Enablement Program (FEP) on Foundation Program 4.0**, Certification authorized by Infosys Limited®
Microsoft Faculty Fellow, Certification authorized by Microsoft® and CITech.

Awards, Achievements, and Funding

Achievements

- 2018 **Convener**, "Graphics Day 2017", An Intercollegiate Project Exhibition, Bengaluru, India
- 2017 **Co-Convener**, Faculty Development Program on "OOP with Java for DAA lab and ARM Programming", Bengaluru, India.
- 2016 **Convener**, 5th National Conference on Emerging Trends in Engineering Technologies (ETET-2016), Bengaluru, India.

Student Collaborations and Awards

- 2018 **1st Place**, Project Exhibition, The 10th Annual Conference of Karnataka Science and Technology Academy held at REVA University.

Awards, Achievements, and Funding (continued)

- 2nd Place**, Project Exhibition, State level Engineering Project Exhibition held at BGS Institute of Technology.
- 2017 **Certificate of Merit**, Project Exhibition, Unisys Cloud 20/20 V8.
- 2016 **Best Project**, Project Exhibition, “TECH-STORM 2016” organized at GSSSET in association with IETE.
- Certificate of Merit**, Project Exhibition, Unisys Cloud 20/20 V7.

Funding

- 2018 **VTU**, Financial Assistance sanctioned by the Visvesvaraya Technological University (VTU) for a project entitled “An IoT Based Smart Trash Bin and Automated Garbage Monitoring System for Smart Cities in India”.
- 2017 **KSCST**, Project Funding Sanctioned under the 41st series of student project programme: 2017-18 (41st Series of SPP), from Karnataka State Council for Science and Technology. Project Title - “An IoT Based Smart Trash Bin and Automated Garbage Monitoring System for Smart Cities in India”.

Scholarship

- 2021 **Chung Ang University**, Won a scholarship (300,000 KRW) to Chung Ang University, being at Department of Imaging Science and Arts in the Graduate School of Advanced Imaging Science, Multimedia and Film.
- 2020 **Chung Ang University**, Won a scholarship (5,538,000 KRW) to Chung Ang University, being at Department of Imaging Science and Arts in the Graduate School of Advanced Imaging Science, Multimedia and Film.
- 2019 **Chung Ang University**, Won a scholarship (13,252,440 KRW) to Chung Ang University, being at Department of Imaging Science and Arts in the Graduate School of Advanced Imaging Science, Multimedia and Film.
- 2018 **Chung Ang University**, Won a scholarship (7,650,000 KRW) to Chung Ang University, being at Department of Imaging Science and Arts in the Graduate School of Advanced Imaging Science, Multimedia and Film.

Courses of Interest for Teaching

Programming Languages	C/C++, Java, Python.
Data Analytics	Data Visualization using Tableau, Data Analysis with R Programming
Machine Learning	Neural Networks, Support Vector Machines
Virtual Reality	3D Models, 3D Interaction, AR/VR/MR/XR Technologies and Applications
Networks/Database	Data Communication, Computer Networks, IoT, WSN, Blockchain, Smart Contracts, Dapps, Blockchain platforms
Computer Graphics	Interactive Computer Graphics with WebGL, OpenGL, Visualization Toolkit (VTK)

Professional Body Membership

- ISTE International Society for Technology in Education - Lifetime member.
- CSI Computer Society of India - Lifetime member.

Personal Details

Name	Bharatesh Chakravarthi.
Date of Birth	1989-05-05
Nationality	Indian
Passport Status	Valid until 2031
Marital Status	Married
Languages	English, Kannada, Korean (elementary)
Current Residence	Seoul, South Korea
Email	chakravarthi589@gmail.com, bco5@cau.ac.kr
Contact Number	(+91) 80954 64858, (+82) 10-6452-4858