orcid.org/0000-0003-0709-2174

Sumegh Paltiwale

Data Analyst, Researcher, Technologist, and a Free Software enthusiast

(O) CETE, Tata Institute of Social Sciences, Bombay - 400 088

(R) C/O Chhaya Sonkusare, Row House No. 35, Poonam Vihar I, Swawlambi Nagar, Nagpur - 440 022

+91 9969 728 229 | udcs.sumegh@gmail.com | sumeghhp | sumeghhp | sumeghhp

Education

Masters of Science, Computer Science — *Mumbai, India*

Department of Computer Science, University of Mumbai — *2017*

Bachelor of Engineering, Instrumentation Engineering — *Mumbai, India*

Watumull Institute of Electronics Engineering and Computer Technology, Mumbai — *2014*

Higher Secondary School — *Navi Mumbai, India*

Sainath Junior College — *2008*

Secondary School — *Mumbai, India*

Atomic Energy Central School — *2006*

Work Experience

Tata Institute of Social Sciences — *Mumbai, India*

Research Coordinator — *August 2019 - Till date*

- Working the the project ITE (Integrated approach to Technology in Education, winner of 2019 eNabling North East Development Award), seeded by Tata Trusts
- Development and maintance of portals for the project(Usually on Wordpress and PHP)
- Analtyics of the courses and corresponding activites on OpenedX-basded platform(TISSx)
- Contribution in content and documentation of free course on usage of ICT in education as a course team member Course Link
- Development of browser-based plugin in JavaScript for Text-mining of online community of practices channels(Analysing the WhatsApp data)Plugin Link. presented in OCCE 2020 Conference
- Statistical analysis and reporting of the data-sets from the fields (Using SPSS, R,and Python)
- Research and implementation of digital badges for e-learning platforms using Badgr, a platfom for backpacking and distributing Digital badges, developed by Mozilla Open Badge Project
- Documentation of research literature
- Development of the graphics for project's research material and OCCE 2020 Conference(Conference Page Link)
- Part of Local Organizing Team for OCCE 2020 conference managing the technical aspect

Tata Institute of Social Sciences — *Mumbai, India*

Research Assistant — *May 2017 - Apr 2019*

- Development of JavaScript based plugins and maintainance on Django/Python based LMS and CMS
- Involved in authoring/maintaining and analytics of the data of gStudio(Django/Python) platform as well as TISSx (edX-based) platform
- Management of Computer Lab at TISS M-Power center and conducting sessions for trainng free and Open Source softwares
- Co-initiated the CLIx-ELeCT (E-learning for Community Technology) initiative at TISS-M-power learning center at M-ward (Mumbai) where the digital literacy course is being run for underprivileged learners.
- Managing the communication channels for Mathematics teachers using various Communities of Practices and documentation of analytics.
- Facilitated the digital literacy course by teaching usage of Free and Open Source tools. Also contributed in development of teachers courses for teaching using dynamic mathematics software.
- Development and documentation of course content for usage of ICT in Mathematics Education for students (Linear Equation, Geometric Reasoning, and Proportional Reasoning modules)
- Organizing and Facilitating TPD workshop on usage of free and opensource technology in education for teachers in their classroom in government schools in Rajasthan, Chattisgarh, Telangana and Mizoram.
- Graphic designing (especially for posters) using Inkscape, GIMP and other opensource tools.

University of Mumbai *Mumbai, India*

Visiting faculty *since Dec 2017*

Taught Python programming language for the Algorithms subject to first semester Masters course students.

Homi Bhabha Center for Science Education(HBCSE),
Tata Institute of Fundamental Research(TIFR) *Mumbai, India*

Intern *Dec 2016 - Apr 2017*

Worked at Gnowledge lab, for migrating an existing opensouce project,gStudio (Django/Python based) to a Neo4j based platform. Work mainly involved exploration of graphical databases and how graph based computation can be considered as an alternative to traditional computing approach.

Bhabha Atomic Research Center *Mumbai, India*

Implant Trainee *May 2012 - June 2012*

Worked on development of an acoustic sensor circuit with an signal amplifier which could be useful for identifying the micro vibrations and micro cracks for safety purposes.

Professional Membership

Cryptology Research Society of India

Life Member

Indian Mathematical Society

Life Member

International Federation for Information Processing (IFIP) - Technical Committee 3

Corresponding Member

Invited Talks and Teaching

- Taught Algorithms and Python Programming to first year MSc Computer Science students at Department of Computer Science, University of Mumbai.
- Conducted one day session at S. P. K. college, Sawantwadi on Algorithms and Introduction to Programming using Python.
- Digital literacy and usage Free and Open Source softwares at M-Power Center for mixed age group learners.
- One day session on introduction to fundamentals of Graphical Databases and Neo4j to MSc students at Department of Computer Science, University of Mumbai

Courses Developed

For Teachers On TISSx (TISSx Link)

- TOL01 - Technologies for Online Learning (Content and Analytics)
- S02 - Reflective Mathematics teaching using ICT (Content)
- C02 - Construtive Teaching and Learning using ICT (Analytics)

For Students on CLIxplatform (CLIx Platform Link)

- Linear Equations (Content, management, and JavaScript tools development)
- Proportional Reasoning (Content authoring)
- Geometric Reasoning (Content authoring)

Research Publications

Book Chapters

- Charania A, Paltiwale S, Bakshani U (2022). Integrated Approach to Technology in Education in India: Implementation and Impact. Taylor & Francis.

Journal Publications

- Charania A, Bakshani U, Paltiwale S, et al (2021). Constructivist teaching and learning with technologies in the COVID‐19 lockdown in Eastern India. British Journal of Educational Technology.

Conference Proceedings

- Paltiwale, S. et al. (2021, October). Understanding the teacher participation and interaction over technology-enabled CoP, In SITE Online Interactive Conference 2021.
- Paltiwale, S. et al. (2020, January). Use of Community of Practice for In-Service Government Teachers in Professional Development. In Open Conference on Computers in Education (pp. 73-77). Springer, Cham.

Conference Abstracts and presentations

- Charania, A., Kaur, I., Paltiwale, S., Sarkar, D., (2020). Preliminary learning and teaching outcomes of project-based learning with ICT. OCCE, India
- Dhakulkar A., Paltiwale S.(2019) *raikhik samikaran ke adhigam ke liye sanvadatmak aur sahyogi vatavaran ka nirmaan* (in Hindi), Central Intititue of Education, Delhi University
- Dhakulkar A., Paltiwale S.(2018). Designing An Interactive And Collaborative Environment For Learning Linear Equations, CLIx Symposium 2018, Tata Institute of Social Sciences, Mumbai. (Poster)
- Salgaonkar A., Paltiwale S. (2016). Neo4j: Entities and Relations are modelled as they are. Confluence of Emerging Trends in Multidisciplinary Research Areas to Mathematics (CETMRAM-2016), Mumbai.

Reports

- Jeevan Baseline Survey Report, Maharashtra, India (2022), Leprosy Trust of India.
- ITE Baseline Survey Assessment,Uttar Pradesh, India (2022), Sir Ratan Tata Trusts, India.

Projects

Capacity Building of Teacher Leaders in Constructive Teaching and Learning with Technology

Collaborative Project between CETE, TISS and UNICEF

- The programme aims to build capacity of4,000 teachers and teacher educators across 10 states in the area of constructive teaching and learning with technology.

TELTA 21

Collaborative Project between CETE, TISS and Capgemini Foundation

- The Project focuses on effect of usage of ICT in government schools of Mumbai

Intergrated Approach to Technology in Education (ITE)

Supported by Tata Trusts

- ITE is a pedagogical framework to improve teaching and learning processes, and foster 21st century skills and authentic, project-based learning for older children and adolescents in some of the most underprivileged geographies. ITE has been implemented in 12, mostly-rural locations in eastern and northern India. Students, most of them first-time computer users, deepen their learning of content by creating learning artefacts like weather charts, graphs representing jute production in India, or population-density charts in different cities. These projects are carefully selected to match the school curriculum and the lessons taught in class.

Digital Badges for TPD in India Project

Collaborative initiative between TISS and Open University UK

- exchange initiative is led by the Open University, UK working with partners at TISS, India.
- It seeks to explore the range of ways that digital badge technology could be used to support effective teaching practice in low- to medium-income teacher education by providing insight into the value and motivations that can be built around digital badges and the enablers and challenges to their use.

RTICT (Reflective Teaching in ICT)

- Involved in planning workshops for teachers and guiding them toward usage of ICT in their curriculum and practices.

Connected Learning Initiative (CLIx)

Collaborative project Led by TISS and MIT

- Project focused on leveraging technology for STEM education in government schools across India.

LE tools

Guided by Dr Amit Dhakulkar, Postdoctoral Fellow, UNESCO Chair for Multimodal Learning and Open

Educational Resources, North West University, South Africa

- Browser based JavaScript interactives developed for Linear Equations module for CLIx.
- These tools were developed as a scaffold to create numerical puzzles for learners as well as for collection of data as per the research objectives and questions.

LO Map

Guided By Prof Ambuja Salgaonkar, HOD, Department of Computer Science, University of Mumbai and Prof G

Nagarjuna, HBCSE-TIFR

- As part of internship during MSc, built using VivaGraphJS and Neo4j as backend.
- Provides interface for making nodes and adding their lineage
- The tool was aimed as developing concept maps as an attempt of using graphical database for Atlas of Knowledge project at the Homi Bhabha Center for Science Education
- please refer to https://github.com/sumeghhp/LOMap

Low cost IR Spectrometer

- A low cost IR oilspectrometer for analysis of oil samples for BE project
- The spectrometer used a commonly available web-camera to capture the input with some physical modifications of its sensors
- The processing of the image caputed for development of histogram was programmed using MATLAB.

Acoustic sensor

Guided By Mr S Shetty, Scientific Officer, CnID, Bhabha Atomic Research Center

- Study and design of Acoustic sensors as part of implant training in Bhabha Atomic Research Center
- The sensor has been successfully tested for detection of minor vibrations and amplifying it for detection of damage or cracks.

Certifications

Research Trends in Machine Learning and IoT (RTMI-2021)Crash Course on Python - 2021

Motilal Nehru National Institute of Technology Allahabad

- Short Term Course (one-week) on Research Trends in ML and IoT (in online mode)

Crash Course on Python - 2021

Google (Coursera)

- A crash-course on Python Programming Language (Certificate link)

Computer Programming for Everyone - 2021

MOOC Offered by Institute of Coding, University of Leeds

- On this course, learners discovered how and why people program computers, the kinds of problemscomputers can solve, explored the different types of coding language and implemented the keyprinciples learnt in their coding project.

Geospatial Information Technology (GIT) in Fragile Contexts - 2021

MOOC Offered by UNITAR (United Nations Institute for Training and Research)

- The course was developed by Operational Satellite Applications Programme (UNOSAT) of the United Nations Institute for training and Research (UNITAR) as part of the Earth Observation for Sustainable Development: Fragility, Conflict and Security project funded by the European Space Agency.
- It aimed to give a short but practical introduction to GIT in states affected by fragility, with a focus on remote sensing.

Blockchain Basics - 2020

MOOC Offered by University at Buffalo (Coursera)

- course intentded to help recognize foundational concepts of blockchain, and apply these program concepts on the blockchain.(Certificate link)

Skills

Constantly try to learn various technologies and quiet familiar with various Open-source tools and their usage. Like to explore various paradigms of programming and different types of databases. Listed few:

Languages	Python, LISP, JavaScript, HTML, CSS, SQL
Databases	Neo4j (Graphical), MySQL (Relational), MongoDB (document-oriented)
Data Analysis	SPSS, R, Tableau, Power BI
Familiar Technologies	JSON, RDF, OWL, Git, Blockchain
CMS/LMS	edX, gStudio (GNOWSYS Studio), Wordpress, Moodle
Graphic Designing	Inkscape, GIMP

Language Proficiency

- English - Fluent
  IELTS certification scores (Academic - 18 Dec, 2021):
  - Speaking - 6.5
  - Listening - 7.5
  - Writing - 7.0
  - Reading - 7.5 Overall - 7.0
- Hindi - Fluent
- Marathi - Fluent