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| BITS Pilani Dubai Campus | **Career Opportunity @ BITS Pilani, Dubai Campus** |

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| **Position Title** | Postdoctoral Fellow (PDF) – 1 position (AIRE+ Project) |
| **Appointment** | Contract |
| **Reporting to** | Principal Researcher – AIRE+ Project |
| **Department** | Computer Science, BITS Pilani, Dubai Campus |
| **Location** | Dubai, UAE |
| **About BITS-Pilani Dubai Campus (https://www.bits-pilani.ac.in/dubai/)** | BITS Pilani, Dubai Campus (BPDC) is the international campus of Birla Institute of Technology and Science, Pilani, India and is located at the Dubai International Academic City. Set up in the year 2000, it is among the pioneer institutions in Dubai, offering high-quality engineering, technology and management education. It attracts a diverse student population from UAE, other GCC countries, Asia, Africa and the Far East.<br><br>BPDC is approved by the University Grants Commission and Ministry of Education, Government of India and licensed and accredited by the Ministry of Higher Education and Scientific Research, Government of UAE.<br><br>BITS Pilani has been granted the status of "Institute of Eminence" by MHRD, Government of India.<br><br>BITS Pilani, Dubai Campus has been awarded a 5-star rating by the Knowledge and Human Development Authority (KHDA) in partnership with QS in 2022, recognizing our excellence in teaching, research, employability, and internationalization.<br><br>BPDC offers B.E & M.E programs in engineering and allied disciplines along with BBA (Hons) & M.B.A in management studies. BPDC also offers Ph.D. programmes in all disciplines, with nearly 2500 students from over 20 countries. The dynamic and vibrant campus has modern infrastructure and teaching/research facilities that enables BPDC to deliver a well-rounded education in an international environment by highly qualified faculty. Smart classrooms, cutting edge laboratory facilities with the latest equipment, a 24/7 Creative Laboratory, and high-definition video conferencing facilities that connects BPDC with the campuses in India are some of the value-added features of BPDC. The Practice School, an internship program embedded in the course structure organized in partnership with over 300 companies, facilitates |

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| | industry attachment for students in preparation for their future careers. |
| **BPDC as a preferred workplace** | BPDC provides an inclusive and supporting environment where you can grow your professional and personal self. BPDC is the place for you if you have the passion to make a difference. |
| **Institutional Responsibilities and Accountabilities** | • Act at all times in accordance with the BITS Pilani Dubai Campus's approved code of conduct.<br>• Work in accordance with BPDC's policies and procedures including following safe work practices for self and others.<br>• Proactively work towards achieving individual and team goals, whilst demonstrating BPDC's values and behaviour.<br>• Actively engage in and embrace professional development opportunities.<br>• Undertake any reasonable tasks as directed. |
| **Job Purpose** | The Postdoctoral Fellow (PDF) will support the execution of **AIRE+: AI-Based Breath Biomarker Analysis for Non-Invasive Risk Scoring of Diabetes and Lung Cancer**, a funded research project led by BITS Pilani Dubai Campus.<br><br>The role integrates experimental sensor research, VOC chamber design and calibration, AI/ML modelling, and embedded prototype development. The PDF will contribute to the scientific foundation, system integration, and pilot readiness of the AIRE+ breathomics platform. The role is designed to support early-career researchers in developing a strong publication record and hands-on translational research experience. |
| **Key Responsibility Areas** | The selected PDF is expected to work for the Research Project.<br><br>**1. Sensor Calibration & Experimental Setup**<br>▪ Lead calibration of MOS, electrochemical, and VOC sensors.<br>▪ Design and test breath sampling / VOC exposure chambers.<br>▪ Conduct controlled VOC experiments across concentration ranges.<br>▪ Develop calibration curves, compensation models, and signal conditioning.<br>▪ Analyse drift, noise, cross-sensitivity, temperature–humidity effects.<br>▪ Generate synthetic breath mixtures for experiment loops.<br><br>**2. VOC Data Acquisition & Dataset Development**<br>▪ Build high-quality dataset pipelines from controlled chamber experiments. |

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| | ▪ Maintain metadata: timestamps, concentrations, environmental annotations.<br>▪ Implement signal preprocessing for AI pipelines.<br>▪ Create datasets suitable for ML, DL and embedded models.<br><br>**3. AI/ML Model Development**<br>▪ Train classical ML and Deep Learning models on sensor signatures.<br>▪ Develop disease risk-scoring models (diabetes & lung cancer).<br>▪ Evaluate biomarkers using supervised + semi-supervised pipelines.<br>▪ Perform feature engineering and fusion (multi-sensor + environmental).<br>▪ Contribute to explainability & interpretability of sensor–AI pipelines.<br><br>**4. Embedded AI & Prototype Integration**<br>▪ Deploy trained AI models onto embedded boards (ESP32, RP2040, EdgeTPU).<br>▪ Optimize inference latency, memory footprint, and quantization.<br>▪ Work with hardware–software optimisation.<br>▪ Validate full pipeline: sensor - chamber - embedded model - output.<br><br>**5. Publications, Dissemination & Patents**<br>▪ Publish at top-tier sensing, IoT, biomedical AI venues.<br>▪ File patents related to chamber design, calibration methods, or AI models.<br>▪ Present at consortium meetings.<br><br>**6. Collaboration & Student Mentoring**<br>▪ Work directly with teams across:<br>• SASTRA University (sensors)<br>• NYU Abu Dhabi (embedded AI)<br>• Gulf Medical University (clinical protocol)<br>• University of Dubai (biostatistics & validation)<br>▪ Mentor student researchers working on calibration, modelling, and deployment.<br><br>**7. Proposal Development & Reporting**<br>▪ Assist in preparation of progress reports, milestone documentation, and technical deliverables.<br>▪ Support development of future grant proposals related to breathomics, VOC sensing, and embedded AI systems. |
| **Competencies Required** | ● Strong foundation in sensor calibration, data acquisition, or experimental engineering.<br>● Experience with AI/ML modelling (Python, TensorFlow/PyTorch).<br>● Familiarity with embedded platforms and real-time data acquisition.<br>● Knowledge of signal processing and feature extraction.<br>● Strong documentation, analytical, and scientific writing skills. |

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| | ● Ability to work in multidisciplinary and collaborative teams.<br>● Commitment to research excellence and innovation. |
| **Educational qualification** | Recently graduated Ph.D. candidates in Computer Science, Artificial Intelligence, Data Science, Electronics/Electrical Engineering, Instrumentation, or Biomedical Engineering, with strong research experience in sensing systems, signal processing, embedded systems, or sensor-driven machine learning. |
| **Experience** | Applicants should demonstrate prior experience in at least one of the following:<br>– VOC/gas sensing or chemical sensors<br>– Sensor calibration or chamber-based experimental workflows<br>– Signal processing for physical sensors<br>– Embedded systems / IoT prototyping<br>– Machine learning for sensor or biomedical datasets |
| **Remuneration & benefits** | Commensurate with qualifications and experience |
| **Tenure of Postdoctoral Teaching and Research Fellow (PDTRF)** | PD tenure will be for a limited period of 2 years (subject to annual review recommendations). |
| Interested candidates meeting the above qualifications and experience must apply online at https://www.bits-pilani.ac.in/careers/non-academic?campus=dubai by **04th January 2026**.<br>Shortlisted candidates will be required to submit relevant documents. No enquiries will be entertained.<br>Multiple applications will be summarily rejected. | |