

## **Job Title: 5G NR MAC Scheduler Engineer**

### **Job Summary:**

We are looking for skilled and motivated engineers to design, develop, and optimize the MAC scheduler for a Massive MIMO O-RAN system. The role involves working on radio resource management algorithms, 5G-Advanced scheduling features, and real-time C/C++ implementation to enable high-performance, high-spectral-efficiency 5G networks.

### **Key Responsibilities:**

- Design and implement MAC scheduling algorithms for eMBB traffic on 32TR massive MIMO systems
- Develop 5G-Advanced scheduling features including dynamic TDD, semi-persistent scheduling (SPS), configured grants (CG), and MU-MIMO user pairing
- Build and tune resource allocation logic to balance spectral efficiency gains against fair throughput across users
- Prototype and simulate scheduling strategies before translating them into production-grade C/C++ implementation
- Validate scheduler behaviour in realistic scenarios, including eMBB streaming workloads and integration with O-RAN testbeds
- Work closely with the protocol stack team to ensure scheduler decisions interface correctly with the nFAPI layer
- Document algorithm design decisions and contribute to performance analysis reports

### **Required Skills:**

- Strong understanding of 5G NR Layer 2 protocols and radio resource management concepts
- Experience with scheduling algorithms (proportional fair, round-robin, max-throughput) and link adaptation (CQI/MCS mapping)
- Familiarity with MIMO concepts, particularly MU-MIMO user pairing and precoding fundamentals
- Understanding of TDD frame structures and dynamic TDD operation
- Knowledge of SPS and configured grants as defined in 3GPP specifications
- Proficiency in C/C++ programming (critical requirement)
- Comfort with simulation/prototyping tools (MATLAB or Python) for algorithm validation before implementation
- Familiarity with Linux systems, multithreading, and real-time constraints
- Strong analytical and optimization skills, given the core task involves constrained resource allocation under competing objectives

### **Experience:**

- 2-4 years of experience preferred

### **Educational Qualifications:**

- Bachelor's or Master's degree in Electronics, Telecommunications, Computer Engineering, or a related field. FRESHERS ARE NOT ALLOWED.
- Interested candidates may email their resumes to [comet@iiitb.ac.in](mailto:comet@iiitb.ac.in) and mention the role for which you are applying clearly in the subject of the email.