

JAMES MITCHELL

Engineering Manager



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With a wealth of experience as an engineering team lead, I bring multidisciplinary expertise spanning software, hardware, electronics, and data science. Utilising this diverse knowledge, I have effectively led teams in the development and operation of complex engineering systems, optimizing resource allocation, enhancing manufacturing throughput, and implementing proactive analysis techniques. My track record reflects successful outcomes in managing budgets, procuring equipment, and executing projects efficiently, highlighting my strong capabilities in general engineering management roles.

PROFESSIONAL EXPERIENCE

Engineering Manager (RF Testing Team Lead)

ALL.SPACE | Sept. 2022 - Present

Led a multidisciplinary team of systems engineers, RF engineers, and software engineers, leveraging extensive multi-disciplinary engineering knowledge to develop and operate RF testing systems for a novel multi-beam Ka band satcom terminal.

Developed RF testing facilities and led Agile development of Python-based control software. Achieved 7x reduction in characterisation time, enhancing manufacturing throughput and ensuring flawless operation by contracted operators.

Oversaw comprehensive testing and characterisation of terminals and subcomponents, including the development of novel multi-beam active antenna units and RFICs, utilising statistical analysis on large datasets.

Successfully managed a substantial budget and led the procurement of RF test equipment, ensuring optimal resource allocation and cost-effective solutions.

Senior Fellow (RF Engineer)

CERN | Sept. 2019 - Sept. 2022

Managed operation and upgrade of high power RF (6 MW) user facilities.

Led design, manufacture, installation, and operation of RF infrastructure and matching components, ensuring efficient project execution.

Developed Python-based fault and intervention statistics, enabling proactive analysis and reducing facility downtime.

Engaged in international collaborations and served as a reviewer for the PRAB International Journal in the field of RF engineering.

PhD Researcher (RF Engineer)

Lancaster Uni. (CERN & CI) | Sept. 2015 - Sept. 2019

Designed antennas for superconducting resonant cavities using CST, HFSS, and Python, with a focus on L-band applications.

Developed novel qualification tests and RF measurement platform for the world's first proton crabbing system.

Utilised high-power RF cavity combiners, RF conditioning systems, and RF travelling wave cavity tuning setups for both L-band and S-band frequencies.

Research Project (Funded)

Lancaster Uni. | Sept. 2014 - June 2015

Designed, manufactured and tested S-band normal conducting RF cavity for hadron therapy at Christie Hospital.

EDUCATION

PhD *Lancaster Uni. (CERN & CI) / Sept. 2015 - Sept. 2019*

Thesis title: Crab cavity HOMs and Impedances

Designed SRF HOM antennas, tested crab cavity HOMs with proton beam [World First, International Prize]

BEng Nuclear Engineering (1st) *Lancaster Uni. / Oct. 2012 - June 2015*

Degree comprised of Mechanical, Electrical/Electronic and Nuclear Engineering

Individual project: Radiotherapy Linear Accelerator Design [Best Project Prize]

TECHNICAL PROFICIENCIES

Software	ANSYS HFSS, CATIA, COMSOL Multiphysics, CST MWS, JIRA, LTspice, Microwave Office AWR, Microsoft Project, SmarTeam, SolidWorks, Zephyr Scale.
Programming	Python, MATLAB, LabVIEW.
RF Measurements	Test equipment: VNAs, spectrum analysers, signal generators, power sensors, calibration kits, oscilloscopes, frequency counters and more. Facilities/devices: Anechoic chambers (including CATRs), horns, probes, parabolics, ESAs (phased arrays), transmission lines (coax, waveguide, PCB), cavity resonators, SSPAs, IOTs, tetrodes. Frequency bands: VHF, UHF, L, S, X, Ku, K, Ka.

ROLES OF RESPONSIBILITY

(ALL.SPACE) Team Lead: Managing team of 6 highly qualified Engineers.

(ALL.SPACE) External RF Testing: RF tests with external collaborators/partners.


(CERN) Physical Review - Accelerators and Beams (PRAB): International Reviewer (high power RF).

(CERN) Future Circular Collider (FCC): Deputy work package leader.


(CERN) Summer student supervisor: Crab cavity multipole measurements.

(Lancaster Uni.) CEPC External Reviewer: RF antenna expert.

AWARDS AND ACHIEVEMENTS

 ALL.IN Award: Notable contributions to the benefit of your team.

 PhD Research Prize: Best student research at HOMSC'18 (international conference, Cornell University).

 IMechE Project Award Medal: Most outstanding final year research, development or design project.

 Cockcroft Institute Particle Accelerator School.

PUBLICATIONS

Conference proceedings (> 10), journal papers (> 5) and invited talks (> 10) are available at my website.

PERSONAL SKILLS / ATTRIBUTES

French: Oral (B1), Written (A2)

Acoustic guitar (self-taught)

STEM Ambassador

Skiing (Alpine and cross-country)

Additive manufacture hobbyist

Indoor rock climbing

Full, clean driving license