

Omar Diab – MSc ASE

+34 651166370 omdiapas@etsid.upv.es

PERSONAL STATEMENT

A chemist and aerospace engineer passionate about learning and science in general. Nowadays, collaborating with an association of students in the design, manufacture and testing of a medium-sized rocket to launch it beyond the Kármán line. A native Spanish speaker with fluent English who promotes continuous improvement of teamwork skills to enhance strengths and weaknesses, especially when focusing on real problems. Analytical and responsible mind when managing real and serious projects.

KEY ACHIEVEMENTS

- Awarded 7500 € scholarship by Fundació Catalunya – La Pedrera on seventh edition of the Scholarship Program for Masters of Excellence 2017/18 in recognition of academic achievements.
- Developed an Image processing algorithm using parallel computing tools and speeded up to 25 % calculations in codes within a Diesel jet combustion research at CMT – Motores Térmicos, saving time costs.
- Appointed student of the year during 2nd Chemistry course, collaborated with SOLINQUIANA research group – placed at Universitat de València - within a framework of activities called *Automation in quantitative analysis using vibrational spectrometry*, Ref. CTQ2005 – 05604. Ministerio de Educación y Ciencia.

EDUCATION

MSc in Astronautics and Space Engineering: Cranfield University, UK (September 2018 – October 2019)

- **Modules:** Astrodynamics and Mission Analysis, Space Systems Engineering, Space propulsion, Space Communications, Advanced topics in Astrodynamics and Trajectory Design and Spacecraft Attitude Dynamics and Control.
- **Group project:** Designed Study for a Rapid Imminent Impactor Characterization System. The topic lied on orbit design and analysis of a reliable space system to mitigate risks of imminent asteroid impacts.
- **Individual Thesis:** *Analysis of perturbation incidence in the calculation of trajectories in ephemeris model.* The work deepened the understanding of the influence that the various perturbations exert on the trajectory calculations, performed by the JPL ephemeris model that provides high-fidelity ephemeris in support of spacecraft navigation and other activities related to Solar System bodies. A procedure was developed to build a tool which, applied to any given interplanetary trajectory, has the ability of predicting which gravitational perturbations are not relevant and can thus be neglected without a significant loss of accuracy.

MSc in Aerospace and Science Technology: UPC, Barcelona, Spain (September 2017 – July 2018)

- **Modules:** Analog and Digital Signal Processing, Fundamentals in Aerospace, Numerical Methods, Space Systems Engineering, Aerospace Materials, Unmanned Aerial Vehicles, Life Support Systems, Satellite Communication Systems, Science in Microgravity, Test and Instrumentation Systems and Astrodynamics.
- **Individual Thesis:** *Analysis of perturbation incidence in the calculation of trajectories in ephemeris model.*

BEng (HONS) Aerospace Engineering: UPV, Valencia, Spain (September 2012 – June 2017)

- **Modules:** Mechanics, Aerodynamics, Fluid Mechanics, Flight mechanics, Propulsion, Structural Analysis of Propulsion Systems, Combustion, Heat and Mass Transfer, Experimental techniques for propulsion systems, Jet engines and Aeroacoustics, Rocket Engines, Thermal turbomachinery and Space Vehicles and Missiles.
- **Individual Thesis:** *Implemented parallel computing tools for optimization of processing algorithms of images in Diesel engines.* The project aim was to speed up calculations on some MatLab scripts to process images coming from Diesel jet combustion experiments, through an architecture known as CUDA.

BSc (HONS) in Chemistry: Universidad de Zaragoza, Zaragoza, Spain (September 2004 – June 2011)

- **Modules:** Balance and kinetics, Reactions and chemical equilibria, Analytical chemistry, Physical chemistry, Introduction to experimentation, Biochemistry, Chemical engineering, Instrumental analysis, Atomic structure and chemical reactivity, Electronic instrumentation, Chemometrics, Nuclear chemistry, Electromagnetism.
- **Individual Thesis:** *Determination of critical points in binary mixtures at infinite dilution: n-hexane + methanol, n-hexane + ethanol, n-hexane + 1-propanol and CO₂ + methanol.* Its aim was to deepen into nature of the intermolecular forces governing behaviour of pure compounds and mixtures subjected to critical conditions.

CAREER HISTORY

Cosmic Research: Terrassa, Spain – Specialist in airframe and propulsion systems (October 2017 – Present)

Founded in 2016, Cosmic Research is a non-profit student association composed of a team size of 25 engineering students from the Universitat Politècnica de Catalunya. Its objective is to be the first student organization launching a rocket into space, reaching the Kármán line, located at 100 km away from Earth surface.

- Led a squad of 5 members to design, test and manufacture of the combustion chamber, nozzle and structure of a 3-meter solid propellant rocket. Created algorithms to study heat transfer for choosing suitable materials and sizing.
- Collaborated with other squads such as propulsion for development of chemical laboratory techniques suitable to synthesize and stabilize its solid propellant.
- Introduced a marketing strategy to obtain private/public funds, performances and concentrations in educational Cansats and promoting presentation events to spread all objectives while recruitment rounds are open.

Inforfénix SL: Valencia, Spain – Teacher (January 2013 – August 2013)

A local academy that provides didactic support to its students through intensive review courses and private classes.

- Directed Mathematics, Physics and Chemistry for high school groups of 15 people at various levels.

Instrumentación y Componentes SA: Zaragoza, Spain – Business delegate (August 2011 – February 2012)

With over 30 years of experience, Inycom SA develops advanced technological solutions in some specialized areas such as Information and Communications, Digital Business, LifeCare integration and Biotechnology. Currently employs up to 600 professionals and has completed more than 750 projects.

- Accomplished inspection tasks, visits and dealing with new clients and organization of events (such as seminars, fairs or training courses).
- Managed a product based on specific equipment for laboratories in analytical chemistry and life science fields typically valued at £50k as average.
- Performed as an exhibitor at 16th International *EXPOQUIMIA 2011* Chemistry fair, placed at Gran Vía fairground centre in Barcelona.
- Lectured a seminar on High resolution *Atomic Absorption with Continuous Source*, held on March 13th of 2012 at assembly hall of Instituto de Tecnología Química located at Universitat Politècnica de València.

SKILLS, INTERESTS & EXTRACURRICULAR ACTIVITIES

- **Languages:** Native Spanish speaker with fluency in English (7/9 Overall IELTS Academic score)
- **IT Skills:** Confident IT user experienced in MatLab, C++, Mathematica 13, parallel computing and Pack Office (Word, Excel and PowerPoint). Basic user of ANSYS – Fluent and STK.
- **Individual Interests:** Enjoy all forms of sport, in particular: football and skating. Love cooking, exploring new cultures and natural environment. Passionate about space sector, rockets and astrophysics.
- **Volunteering:** *El País*, Zaragoza – Conducted an opened-stand in charge of receiving, storing and freely distributing daily newspaper to university students of the Faculty of Mathematics during 5th year of Chemistry in the Universidad de Zaragoza. Promoted a scholarship raffle up for entire student community.
- **Memberships:** Enrolled currently in some Cranfield's societies: Astronomical, football and Cranseds.
- **Professional/Technical training:** Inycom SA, Zaragoza – Training certificates in analytical and biological equipment (120h). Universidad de Zaragoza – Introductory course on integrated systems for quality, environment and labor risks prevention (30h). Universitat de València – Initiation to research (15h).