CONTACT

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LANGUAGES

English (Bilingual)
French (Native).
Spanish (Limited working)
Italian (Elementary)
Hebrew (Elementary)

CERTIFICATIONS

Working at Heights Training
Aerial Lifts & Aerial Work Platforms
Fall Protection - Safety Training
Elevated Work Platform - SafetyTraining
Airport Security Awareness Training Certificate
Emergency First Aid – CPR and AED

PUBLICATIONS

Emission Measurements of VariousBiofuels using a Commercial Swirl-Type Air-Assist Dual Fuel Injector

Comparative Study for Biodiesel Properties and Standards for Gas Turbine

JOACHIM AGOU

Mechanical Aerospace Engineer | Systems Integration
Project Engineering | Project Management

Experienced mechanical aerospace engineer with a combined 10+ years of dedication and proven ability in project engineering, prototype design/development, systems integration, quality assurance, and manufacturing methodologies.

Throughout my various positions and projects in the Aerospace and Energy industry, I always had the pleasure of forming trust-based relationships, solving complex customer problems, and leading teams to achieve challenging goals.

My guiding principles are simple: work hard, lead by example and deliver a positive impact on every professional and personal engagement.

EXPERIENCE

MDS Aero Support Corporation
Gas Turbine Applications Engineer (Systems Integrator)
December 2013 — Present
Ottawa (ON), Canada

- Develop and deploy custom-built test facilities and test systems for aviation, industrial, and marine Gas Turbine (GT) engines, emphasizing Hardware and Software integration.
  - A few projects I worked on:
    <u>Maintenance, Repair, and Overhaul (MRO) facilities:</u>
    - ✓ Air France Industries KLM Engineering & Maintenance (France) – CFM56-5B, CFM56-7B, GE90-115B, GE90-94B, EA GP7200, GEnx-1B, GEnx-2B
    - ✓ GKN Aerospace (Sweden) – Volvo RM12 and RM16 (Gripen fighter jet)
    - ✓ Standard Aero (formerly Vector Aerospace) (Canada) – P&WC JT15D (multiple variants)
    - ✓ Lockheed Martin Commercial Engine Solutions (Canada) – CFM56-2A, CFM56-2B, CFM56-2C, CFM56-3, CFM56-5A, CFM56-5B, CFM56-5C, CFM56-7B, GE CF6-50C2
    - ✓ Safran Aircraft Engine Services Morocco (Morocco) – CFM56 (multiple variants)
    - ✓ Rolls-Royce (UK) – Console
    - ✓ GA Telesis Engine Services (Finland) – CFM56-5B, CFM56-7B, GE CF6-80C2

    <u>Research and Development (R&D) facilities:</u>
    - ✓ Rolls-Royce/ NASA Stennis Space Center (USA) – Outdoor Jet Engine Test Facility (development and certification testing)
    - ✓ Safran Aircraft Engines (formerly Snecma) (France) – CFM LEAP-1A (certification testing), CFM56 (endurance testing)
    - ✓ MAN Energy Solutions (Germany) – Industrial Gas Turbine MGT6000-2S, MG8000-1S
    - ✓ Siemens (Canada) – Industrial RB211
    - ✓ MDS AeroTest/ GLACIER Test Facility (Canada) – Emissions system support
    - ✓ AVIC Commercial Aircraft Engines (ACAE) / Aeroengine Corporation of China (AECC) (China) – Fan, Booster, HPC, and Turbine (development testing)
    - ✓ Shanghai Electric Blower Works Co (China) – Compressor (development testing)
- Apply Gas Turbine (GT) engine testing expertise to support the design process when interpreting customer requirements.

- Apply knowledge of industry standards and best practices to developing engineering specifications for data acquisition software development.
- Define the relevant engine and facility parameters to be measured and calculated by the Data Acquisition System (DAS) during GT engine testing to comply with the industry standards and customer test specifications.
- Configure the DAS and automate test sequences as required to measure, record and display required test parameters.
- Prepare GT engine performance calculations and client post-analysis test reports based on test specifications and engine shop manuals.
- Prepare display pages required to operate and monitor the GT engine and facility during the tests.
- Prepare throttle configurations to support manual and automated test requirements.
- Design the customer's operations consoles and the integration of HMI to control and monitor the DAS and facility equipment.
- Support customer's operations of GT engine testing during and beyond the commissioning phase (Field Service Representative) for extended periods (6+ months).
- Prepare and review technical documents: Engineering Specifications (ES), Design Briefs (DB), drawings (GA), Purchase Requests (PR), and Engineering Coordination Memos (ECM) for data acquisition software components, control/test systems, console design, and customer support.
- Write and run in-house and on-site Acceptance Test Procedures (ATP) to validate deliverables that comply with contract technical and commercial requirements.
- Participate in on-site installation and commissioning of the Data Acquisition System (DAS), including performing on-site Acceptance Test Procedures (ATP) with clients.
- Provide on-site support for the operation of Data Acquisition Systems during the commissioning phase.
- Use knowledge gained in the test cell environment to guide other engineering departments in interpreting customer requirements and the design solutions required to meet those needs.
- Prepare and provide customer training remotely and at customer facilities.

Siemens Canada (formerly Rolls-Royce Canada), Research and Technology
Combustion & Pollutant Emissions Engineer - Aerothermal (intern)
January 2013 — December 2013
Montreal (QC), Canada

- Operated pollutants measurements with gas analyzers - FTIR/FID/O_2 CEMS (Continuous Emission Monitoring Systems) - on Gas Turbine testbeds.
- Improved emissions data processing and analysis of non-conventional pollutants emissions.
- Evaluated the combustion performance of liquid (biodiesel blends) and gaseous (syngas blends) biofuels in terms of smoke & emissions and lean blowout.
- Characterized promising liquid and gaseous novel biofuels for use in industrial Gas Turbines to reduce greenhouse gases and potentially operation costs.
- Developed a robust numerical model for biofuels injection and combustion prediction (CFD).
- Compared biofuels with baseline fuels to examine the benefits while maintaining an acceptable overall combustion performance.

Combustion Research Laboratory at Laval University
Research & Teaching Assistant with Dr. Alain De Champlain
January 2011 — December 2012
Quebec City (QC), Canada

- Developed biofuels (liquid & gaseous) applications for Gas Turbine and aircraft propulsion.
- Operated combustion gas emissions monitoring of swirl combustor via FTIR (Fourier Transformation Infrared) – spectroscopy technology.

- Executed experimental tests of spray using PIV (Particle Image Velocimetry).
- Computed fluid dynamics prediction (CFD) of biodiesel spray, including swirler configurations, emphasizing penetration depth, droplet size, velocity, and spreading.
- Designed and assembled experimental apparatus, conducted experiments, trained, and supervised international summer interns.
- Hands-on work like soldering electrical circuits, wiring instruments, and assembling process equipment (mass flow controllers, piping, pumps, pressure chambers, heaters, valves, injectors, and heat exchangers).
- Deployed Data Acquisition System (DAS), calibrated instrumentation, performed tests and troubleshot problems.
- Compiled VBA program to collate and analyze a large volume of experimental data.
- Critically analyzed data after tests and correlated it with empirical evidence.
- Optimized the testing process to enhance data collection and established a benchmark for quantifying test results.
- Authored comprehensive technical reports to document test protocol, safety procedures, equipment laboratory, and findings.
- Successfully completed WHMIS and WORKSMART health and safety training programs.
- Prepared MAE Thermodynamics lectures, showed demonstrations of experiential exercises, supervised laboratory lectures, and evaluated laboratory reports.

Florida Institute of Technology

Independent Study in Mechanical Engineering with Dr. Razvan Rusovici

January 2010 — June 2010

Melbourne (FL), USA

- Developed adaptive structures research and finite element analysis in fluid dynamics and acoustic via CAD and CAE software (Pro/E, ANSYS, and CFX).

Florida Tech Motorsports (FIT)

Formula SAE Series with Stephanie Hopper and Dr. Youngsik Choi

November 2008 — May 2009

Melbourne (FL) & Michigan International Speedway (MI), USA

- Supervised the powertrain division, dealing with engine management, differential, simulation, testing and optimization via CAD and CAE software (SolidWorks, Cosmos Design, and ANSYS).
- Designed and fabricated the composite bodywork.
- Created the Florida Tech Motorsports website.

Prestige Dentaire

Service Engineer (intern)

June — July 2006

Nice, France

- Executed maintenance of dental equipment.
- Overhauled mechanical, plumbing, and electrical devices.

Tsahal, Israeli Army Training Program

Military Experience (volunteer): Sar El Program

July — August 2005

Hatzerim Air Force Base, Israel

SKILLS & ABILITIES

- **Industry Knowledge:** System Integration, Systems Engineering, Project Engineering, Project Management, Aerospace Engineering, Business Strategy, Testing and Simulations
- **Domain Expertise:** Turbomachinery, Gas Turbines/ Jet Engines/Propulsion, Data Acquisition Systems, Aerodynamics, Thermodynamics, Combustion, Fluid Dynamics
- **Tools & Technologies**
  - **Computational Fluid Dynamics (CFD):** Ansys Fluent, Ansys CFX, Ansys ICEM CFD (Mesh Generation), GAMBIT.
  - **Solid Modeling (CAD)/ Finite Element Analysis (FEA):** AutoCAD, SolidWorks, Pro/ENGINEER & PTC Creo, CATIA, ANSYS Workbench Platform, ANSYS Parametric Design Language (APDL), Cosmos Design, Solid Concepts, CNC Software/Mastercam.
  - **Data Acquisition (DAQ):** NI LabVIEW, proDAS and nxDAS (MDS Aero Support Corp), LaVision FlowMaster (PIV).
  - **Development Tools:** MS Excel/VBA, Python, Matlab, Java, SQL database, HTML programming, XML, LaTex, Mediawiki.
  - **Computer Skills:** Microsoft Office, Linux architecture, Computer networking, NetBeans, MATLAB, Mathcad, Maple, Adobe Photoshop, Adobe Lightroom, Adobe XD, Adobe Premiere Pro, computer virtualization (VMware), Wi-Fi security and penetration testing (Kali Linux), source code repositories and bug tracking systems.
- **Interpersonal Skills:** Problem Solving, Team Leadership, Engineering Management, Training, Teaching, Negotiation
- **Languages:** English (Bilingual), French (Native), Spanish (Limited working), Italian (Elementary), Hebrew (Elementary)

EDUCATION

Laval University
Master of Science (M.S.), Mechanical Engineering with Experimental Thesis. (ABD)
December 2013
Quebec City (QC), Canada

- Research Assistant (Combustion Laboratory).
- Teaching Assistant (MAE Thermodynamics).
- Laser Safety Certificate & WHMIS (Workplace Hazardous Materials Information System) qualified.
- Relevant courses completed:
  - Combustion Fundamentals (+CFD)
  - Internal Combustion Engines (+CFD)
  - Propulsion/ Air-breathing Engines (+CFD)
  - Data Acquisition and Signal Conditioning
  - Systems Optimization
  - Control Systems

Carleton University
Summer Program, Mechanical Engineering
Summer 2012
Ottawa (ON), Canada

- Experimental tests of spray using PIV (Particle Image Velocimetry) and PDPA (Phase Doppler Particle Analyzer).

Florida Institute of Technology

Bachelor of Science, Mechanical Engineering *(transfer student)

May 2010

Melbourne (FL), USA

- Formula SAE member. Powertrain Division and Bodywork designer.
- Relevant courses completed:
  - Computer-Aided Engineering
  - Aerodynamics and Flight Mechanics
  - Design of Machine Elements
  - Mechanical Vibrations
  - Fluid Mechanics (+Lab)
  - Heating Ventilation and Air Conditioning (HVAC)
  - Mechanical Engineering Design 2
  - Thermal Systems Design
  - Thermodynamics 2
  - Heat Transfer (+Lab)
  - Control Systems
  - Electric & Electronics Circuits
  - Theory of Machines
  - Materials Science and Engineering (+Lab)
  - Calculus 3
  - Boundary Value Problems
  - Technical Communication
  - Engineering Economy & Planning
  - Music Theory

SKEMA Business School (formerly Euro-American Institute of Technology)

Bachelor of Science, Mechanical Engineering *(transfer student)

January 2007

Sophia Antipolis, France

- Relevant courses completed:
  - Thermodynamics 1
  - Aerodynamics
  - Statics & Dynamics
  - Deformable Solids
  - Physics 2 (+Lab)
  - Computer-Aided Design and Drafting
  - Software Development: Java & C++
  - General Chemistry
  - Ethics

* Florida Institute of Technology and SKEMA Business School are part of a dual-degree program and thus share a common graduation project.

Lycée Général et Technologique Les Eucalyptus

June 2004

Nice, France

❖ High school, Baccalauréat Science Stream (S), Specialization Physics & Chemistry, Option Engineering Sciences.

PUBLICATIONS / CONFERENCE PAPERS

- J. Agou, B. Paquet & A. deChamplain. "**Emission Measurements of Various Biofuels using a Commercial Swirl-Type Air-Assist Dual Fuel Injector**" (with presentation), *The Combustion Institute Canadian Section (CICS), Spring Technical Meeting, Université Laval, Quebec, Canada, May 13-16, 2013*

- M. Youssef, J. Agou, B. Paquet & A. deChamplain. "**Comparative Study for Biodiesel Properties and Standards for Gas Turbine**" (with presentation), *The Combustion Institute Canadian Section (CICS), Spring Technical Meeting, University of Toronto, Ontario, Canada, May 13-16, 2012*

CERTIFICATIONS & TRAINING

- **Aerial Lifts & Aerial Work Platforms [Mar 2017]**, Worksite Safety Compliance Center, Certificate 156AWP-64
- **Airport Security Awareness Training Certificate [Jun 2014]**, Butterfly Aero Training, License GB81580A20140623
- **AODA Customer Service Training [Sep 2014]**, MDS Aero Support Corporation
- **COVID-19 Employee Health and Safety Training [Jun 2020]**, MDS Aero Support Corporation
- **Elevated Work Platform - Safety Training**, CRS Contractors Rental Supply
- **Emergency First Aid – Cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED)**, Canadian Red Cross, Jennifer Sybrandy, Certificate 30200842
- **Fall Protection - Safety Training**, CRS Contractors Rental Supply
- **Instant HR - Workplace Hazards Training**, MDS Aero Support Corporation
- **IT Risk and Cybersecurity Training for Employees [Aug 2019]**, MDS Aero Support Corporation
- **Laser Safety Certificate [May 2011]**, Université Laval, License CAN/CSA E-60825-1:03; IEC 60825-1
- **Lockout/Tagout - Control of Hazardous Energy Training**, MDS Aero Support Corporation
- **NEXUS [Jan 2019]**, Canada Border Services Agency
- **Occupational Health and Safety Awareness Training for Workers in Ontario**, MDS Aero Support Corporation
- **PMP® Exam Prep Seminar [Nov 2018]**, Instructingcom, LLC, ID 109EPSWB
- **Standard First Aid and CPR level C and AED [Jul 2021]**, Ottawa Paramedic Service
- **WHMIS Training [Jan 2015]**, MDS Aero Support Corporation
- **WHMIS Refresher Training [Aug 2019]**, MDS Aero Support Corporation
- **WHMIS (Workplace Hazardous Materials Information System)**, Université Laval
- **Working at Heights Training [Aug 2019]**, LaborTek Personnel, WAH-34595
- **Working at Heights Training [Jul 2016]**, Safety Training Ottawa, WAH-34633

AWARDS

Engineering & Science Student Design Showcase

April 2009

Melbourne, FL

❖ Best Mechanical Engineering Senior Design Project award with Formula SAE Project (Florida Tech Motorsports).

GROUPS & ASSOCIATIONS

❖ **American Society of Mechanical Engineers (ASME)**, Member #102114839

- **Society of Automotive Engineers International (SAE)**, Member since 2009
- **Professional Engineers and Geoscientists Newfoundland & Labrador (PEGNL)**

INTERESTS

Soccer, Karate (purple belt), Windsurfing (purple sail), Wakeboarding, Cycling, Skiing.
Cinema, Music (DJ), Photography & Graphic Design, Traveling, High-Tech, Innovation.

REFERENCES

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