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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 -
Safety Training
Airport Security Awareness
Training Certificate
Emergency First Aid – CPR and
AED

PUBLICATIONS

Emission Measurements of
Various Biofuels 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 Aerospace and Energy industry, I always had pleasure 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 engine test facilities and test systems for aviation and industrial Gas Turbines with emphasis on Instrumentation and Software integration.
 - A few projects I worked on:
 - Maintenance, Repair, and Overhaul (MRO) facilities:
 - ✓ Air France Industries KLM Engineering & Maintenance (France) – CFM56, GE90, GP7200, GEnx
 - ✓ GKN Aerospace (Sweden) – Volvo RM12 (Gripen fighter jet)
 - ✓ Vector Aerospace (Canada) – P&WC JT15D (multiple variants)
 - ✓ Lockheed Martin Commercial Engine Solutions (Canada) – CFM56 (multiple variants)
 - ✓ Safran Aircraft Engine Services Morocco (Morocco) – CFM56 (multiple variants)
 - Research and Development (R&D) facilities:
 - ✓ Rolls-Royce/ NASA Stennis Space Center (USA) – Outdoor Jet Engine Test Facility (development and certification testing)
 - ✓ Safran Aircraft Engines (formerly Snecma) (France) – CFM LEAP (certification testing), CFM56 (endurance testing)
 - ✓ MAN Energy Solutions (Germany) – Industrial Gas Turbine MGT6000-2S, MG8000-1S
 - ✓ 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)
- Define the relevant engine and facility parameters to be measured and calculated by the Data Acquisition System (DAS) for engine turbine testing.
- Configure Data Acquisition System (DAS), prepare post-analysis report templates, create real-time display pages, and automate test sequences to meet customer needs.
- 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 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 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.
- Use knowledge gained in the test cell environment to guide other engineering departments in the interpretation of customer requirements, and the design solutions required to meet those needs.
- Provide on-site and remote customer training in collaboration with Customer Service.

Siemens Canada (formerly Rolls-Royce Canada), Research and Technology Combustion & Pollutant Emissions Engineer - Aerothermal (intern)

January 2013 — August 2013

Montreal (QC), Canada

- Operated pollutants measurements with gas analyzers - FTIR/FID/O₂ 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 blow out.
- 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 with emphasis on 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 troubleshoot 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, CFX, ANSYS ICEM CFD (Mesh Generation), GAMBIT.
 - **Solid Modeling (CAD)/ Finite Element Analysis (FEA):** AutoCAD, SolidWorks, Pro/ENGINEER & Creo, CATIA, ANSYS Workbench Platform, ANSYS Parametric Design Language (APDL), Cosmos Design, Solid Concepts, CNC Software/Mastercam.
 - **Data Acquisition (DAQ):** NI LabVIEW, proDAS (MDS Aero Support Corp), LaVision FlowMaster (PIV).
 - **Development Tools:** Matlab, Java, MS Excel/VBA, SQL, HTML Programming, LaTeX, Mediawiki, Wi-Fi security and pentesting (Kali Linux).
 - **Computer Skills:** Microsoft Office, NetBeans, MATLAB, Mathcad, Maple, Adobe Dreamweaver, Adobe Photoshop/ Lightroom, Adobe Premiere Pro, VMWare (Virtualization), Linux.

- ❖ **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 were 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 & TRAININGS

- **Aerial Lifts & Aerial Work Platforms**, Worksite Safety Compliance Center, Certificate 156AWP-64
- **Airport Security Awareness Training Certificate**, Butterfly Aero Training, License GB81580A20140623
- **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
- **AODA Customer Service Training**, MDS Aero Support Corporation

- **Fall Protection - Safety Training**, CRS Contractors Rental Supply
- **Instant HR - Workplace Hazards Training**, MDS Aero Support Corporation
- **Laser Safety Certificate**, Université Laval, License CAN/CSA E-60825-1:03; IEC 60825-1
- **Lockout/Tagout - Control of Hazardous Energy Training**, MDS Aero Support Corporation
- **NEXUS**, Canada Border Services Agency
- **Occupational Health and Safety Awareness Training for Workers in Ontario**, MDS Aero Support Corporation
- **WHMIS Training**, MDS Aero Support Corporation
- **WHMIS (Workplace Hazardous Materials Information System)**, Université Laval
- **Working at Heights Training**, Safety Training Ottawa, Debbie Desaulniers

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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Manager of nxDAS group

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Dr. Robert Gordon

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Dr. Yan Grasselli

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