PERSONAL INFORMATION

Sorin - Íoan Lupa, *Eng., Drs, MASc, MAM*

POSITION
PLACE OF WORK

PhD student

- IOSUD - Politehnica University of Timișoara
- Doctoral School of Engineering Studies, field of Mechanical Engineering
- under the scientific supervision of Dr. ing., Sebastian MUNTEAN, CS 1

AREAS OF EXPERTISE

Engineering Expertise

- Provide technical advice on design, operation and maintenance for different systems
- Prepare pre-feasibility and feasibility studies
- Project cost estimates and scheduling
- Identify performance requirements
- Coordinate qualification tests
- Supervise commissioning tests
- Ensure technical and quality compliance
- Audit facilities, evaluate equipment condition and make recommendations

Design

- Develop detailed design for mechanical, pneumatic and electro-hydraulic subassemblies
- Carry out applied research
- Execute design development tasks
- Develop bid specifications and proposals
- Participate to the tendering process
- Solve non-compliance issues
- Support troubleshooting

Project Management

- Provide coordination and management for major projects
- Administer contracts from the bidding phase to the end of the guarantee period
- Monitor the manufacturing, installation and testing of equipment by subcontractors
- Coordinate activities with external engineering resources

TYPICAL APPLICATIONS

- Components and subsystems for hydropower generating units
- Speed governors for hydroelectric turbines
- Pressurized air/oil systems, high pressure nitrogen applications
- Auxiliary systems for hydroelectric units and upstream/downstream gates
- Hydraulic, pneumatic, electric and mechanical pilots and actuators
- Interface of systems with electronic controller and unit protection
- Instrumentation

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WORK EXPERIENCE

2022 - Present

GE Renewable Energy, Quebec, Canada
Hydropower equipment supplier and service provider

Turbine Consulting Engineer

- Design mechanical components
- R&D and manufacturing method for pneumatic and hydraulic systems
- Supervise design for mechanical components, auxiliary systems and speed governors
- Manage interfaces with other disciplines
- Coordinate a team of draftsmen and designers
- Collaborate with project team and plan interdepartmental resources
- Ensure support for manufacturing
- Answer non-conformities issues and support troubleshooting
- Identify performance requirements and coordinate qualification tests
- Provide technical expertise for on-site installation and commissioning
- Develop root cause analysis and associated maintenance programs for systems

2010 - 2021

HYDRO-QUÉBEC, Montréal Head office, Canada
Hydroelectricity producer and distributor

Senior Engineer

- In charge for operation, maintenance and safety projects for hydropower turbine units
- Optimise interfaces and facilitate integration of systems for a generating station
- Review the fundamental strategy to optimize the maintenance
- Develop national regulations, directives and guidelines for power plants
- Attend technical meetings and serve on management / strategy committees

Project Manager

- Coordinate projects related to facilities operation and security
- Manage the respect of the quality plan, schedules and budgets
- Plan and supervise engineering, lead an technical team
- Monitor and report on project progress, inform the client and brief the stakeholders

2000 - 2010

ALSTOM HYDRO CANADA INC, Sorel -Tracy Design office, Canada
Hydropower equipment supplier and service provider

Senior Design Engineer

- Produce and revise technical documents for hydro turbines, pumps and main inlet valves
- Supervise and approve design of auxiliary systems, speed governors and pressurized systems
- Ensure support for manufacturing and on-site installation
- Provide technical expertise for commissioning of hydro-mechanical equipment

Principal Engineer

- Provide project management for design domain, coach and supervise an engineering team
- Administer contracts, ensure supervision of subcontractors
- Oversee quality control, installation and workshop test by suppliers

2000

PRATT & WHITNEY, Power plant #1, Montréal, Canada
Turbo engines for aviation producer and distributor

Intern (CAD/CAM)

- Analyse, standardise and optimise sequences for gas turbine manufacturing
- Perform lean activities related to the continuous improvement program

1998 – 1999

ISITEM / CNRS Nantes, France
Research unit of the University and CNRS - Thermokinetics Laboratory

Research Engineer

- Design and use a test bench to study heat transfer
- Perform experiments according to a Design of Experiment plan

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EDUCATION

in progress **PhD's degree in Applied Science** (Bi-Diplôme) EQF level 8
Université du Québec à Trois-Rivières, Canada
Politechnica University Timisoara, Romania
Thesis: "Investigating the Operation of Hydraulic Turbines in Transient Regimes"

2022 **Master's degree in Asset Management** EQF level 7
Université du Québec à Trois-Rivières, Canada
Dissertation: "Water Hammer Interaction Between Power Generators and Hydraulic Passages"

1999 **Master's degree in Applied Science** EQF level 7
Research Institute in Thermodynamics, Energy and Materials, Nantes, France
Dissertation: "Heat Transfer Through the Gas Layer at a Metal Interface"

1988 **Bachelor's degree in Mechanical Engineering** EQF level 6
Technical University of Iasi, Romania
Mechanical engineer diploma, specialisation in Thermodynamics
Examination board recommendation in Research, Design and Higher education activity

PROFESSIONAL DEVELOPMENT COURSES

2015 **Course & Training for PMP Certification** EQF level 5
Project Management Institute, Montréal, Canada
- Project Management theory and skills

2013 **Green belt in continuous improvement** (6 Sigma & Lean) EQF level 5
Université de Sherbrooke, Canada
- Manage projects (6 Sigma) and production activities (Lean) in continuous improvement

2003 **Training in Governor speed control for hydraulic turbines**
Alstom Global Technology and Hydropower Centre, Grenoble, France
- Control-command theory and skills for hydrogenerators units

2000 - 2002 **Certificate in Aeronautics** EQF level 6
École Polytechnique de Montréal, Canada
- First third of the Bachelor's degree in Aeronautics Engineering

2001 **Professional Engineer Licence**
Ordre des ingénieurs du Québec, Montréal, Canada
- Professional Licence for Engineering reserved activities

2000 **ACS in CAD/CAE** EQF level 4
Cégep du Vieux Montréal, Québec, Canada
- Certificate of collegial studies in computer-aided design (CAD) and computer-aided engineering (CAE) software

PERSONAL SKILLS

Mother tongue(s): Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English (Independent user)	B2	B2	B1	B2	B2
French (Proficient user)	C2	C2	C2	C2	C2

Communication skills
- good communication skills
- easiness to motivate a team

Organisational / managerial skills
- leadership, currently responsible for a team of 12 people
- resource planning and supervising
- strong organizational skills
- results-oriented

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Job-related skills

- analytical, with excellent spatial vision
- very good design skills in hydraulics and pneumatics
- design skills in mechanics
- performance and commissioning tests

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Proficient user	Proficient user	Proficient user	Independent user	Independent user

- Excel, AutoCAD, CATIA, MathCAD,
- MS Project, Visio, PowerPoint, Word, SAP

Driving licence B

ADDITIONAL INFORMATION

Publications

- **IAHRWG Czechia, 2025**:
  "Durability Assessment of Francis Turbine Spiral Casings"
- **IAHR India, 2024**:
  "Experimental investigations of overpressure values during load rejection in several hydraulic passages of hydropower plants equipped with Kaplan turbines"
- **IAHRWG Romania, 2023**:
  "Temporal interaction of water hammer factors during the load rejection regimes in a hydropower plant equipped with Francis turbines"
- **IAHR Norway, 2022**:
  "Investigation of Water Hammer Overpressure in the Hydraulic Passages of Hydropower Plants Equipped with Francis Turbines"
- **Energies Journal, 2022**:
  "The impact of water hammer on hydraulic power units"
- **WCEAM Brasil, 2021**:
  "Water Hammer Interaction Between Hydraulic Power Generators and Hydraulic Passages"
- **Hydroworld Review USA, 2015**:
  "Hydro-Québec manages delicate balance of old and new"

Conferences and Seminars

- **IREQ (Research Institute of Hydro-Québec), Qc, Canada, 2024**
  - Author and presenter of the paper: "Experimental Studies of Overpressures in Load Rejection in the Hydraulic Passages of Kaplan Turbines – Asset Management Approach"
- **IREQ (Research Institute of Hydro-Québec), Qc, Canada, 2021**
  - Author and presenter of the paper: "Interaction Between Power Generators and Hydraulic Passages"
- **Hydro-Québec Headquarters Montréal, Qc, Canada, 2014–2021**
  - Attend regular interdepartmental conferences
  - Present reports on technical and strategies meetings
- **HydroVision USA:**
  - **Minneapolis, 2016**: Represent HQ on conferences and committees
  - **Portland, 2015**: Author and presenter of the paper "Hydraulic governor systems – new goals for HQ"
  - **Sacramento, 2011**: Represent HQ on conferences and committees
  - **Charlotte, 2010**: Author of a paper entitled "Alstom Modular Retrofit Kit – Recent Achievements"
- **Alstom Global Technology and Hydropower Centre, Grenoble, France, 2004–2010**
  - Present reports on technical meetings
  - Attend biannual meetings as a member of the Alstom International Strategy Committee
- **WaterPower USA, Spokane, 2009**
  - Author and presenter of the paper "Alstom Governing System – Most Recent Achievements"
  - Represent Alstom Canada for technological monitoring of turbine speed

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