



# M. Sc. JEAN-FRANCOIS DESJARDINS

**AI|MLOps, Data Science, Predictive Model, Business Intelligence, Imaging**  
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## EXPERIENCE

### **2025 – Founder (in formation), Full-Stack Developer, Agentic Systems Architect** *Munich/Regensburg, Germany.*

Building cloud-based agentic systems uniting LLMOps, workflow orchestration, RAG, and ML predictions. Focused on governance, reliability, and enterprise compliance with guardrails and human-in-the-loop approvals for secure, auditable, and scalable deployment.



### **2025 - Senior Software Developer / Data Scientist (AI Focus)**

*Labor Kneißler (Ariane Group) GmbH & Co. KG, Bürglengenfeld, Germany*

Developed AI/ML systems for product classification, MLOps deployment, and cross-disciplinary project delivery within Ariane Group.



### **2018-2025 - Software Architect in AI**

*eins+null GmbH Co. KG, Regensburg, Germany SaaS for energy providers.*

**Business Intelligence AI|MLOps scalable deployment** (Recognition, Custom LLM-Assistance, Churn Prediction, Quality Control)



### **2016 - 2018 Teacher**

*Regensburg, Bavaria, Germany*

Teaching French to engineering professionals.



### **2009-2016 - Doctorant Research/Teaching**

*McGill University, Montréal, Canada*

**Tracking events** from single molecules, to cells to organisms via **optical imaging**.



### **2008-2009 - Floating Representative**

*Ikon - Office Solutions, Montréal, Canada*

World's largest independent provider of document management systems until it was sold.



### **2005-2008 - Research/Teaching Assistant**

*Université de Montréal, Montréal, Canada*

Growth and luminescence of silicon nanocrystals in silica using ionic co-implantation.

## ABOUT ME

### **Work Interests**

- Data-driven environments
- Solve complex challenges
- State-of-the-art technologies
- Emerging Business Intell.
- Optical Imaging and Health
- Lead/Dev./Consult/Mentor

### **Multi-disciplinary projects**

IT, Neuroscience, Nanotech, Chemistry, Informatic, Optics, Quality, Marketing

### **Languages and Interests**

French, English, German, Fine cuisine, Composing music

### **Education**

- Ph.D. Candidate in Physics  
McGill University, CAN
- M. Sc. in Physics  
Université de Montréal, CAN
- B. Sc. in Math and Physics  
Université de Montréal, CAN

### **Scholarship**

GEPROM, Graduate Fellowship, Excellence Scholarship

### **Authorship**

Publ.(3+1), Talks(20+),  
Posters(2)

## ANNEXE - Python Full-Stack & Data Science Experience

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Software	Data Science & B.I.	Scientific
<ul style="list-style-type: none"><li>• Data-driven solutions</li><li>• End-to-end pipelines</li><li>• MLOps pipelines</li><li>• Cloud-based applications</li><li>• Scalable systems (Docker)</li><li>• Large-scale databases</li><li>• Data processing optimization</li><li>• Custom LLM Integration</li><li>• Python/Php Web. Dev.</li><li>• Asynchronous programming</li><li>• React frontends</li><li>• Reusable components</li></ul>	<ul style="list-style-type: none"><li>• Un-/Supervised learning</li><li>• Recognition and Tracking</li><li>• Advanced statistical analysis</li><li>• Data classification</li><li>• Noisy Data</li><li>• High-throughput processing</li><li>• Data mining and big data</li><li>• ML and Predictive models</li><li>• Pattern characterization</li><li>• Fluctuation analysis</li><li>• OCR characterization</li><li>• Churn, duplicate detection</li></ul>	<ul style="list-style-type: none"><li>• Fluorescent imaging</li><li>• Nonlinear optical imaging</li><li>• Electron microscopy</li><li>• Vibrational spectroscopy</li><li>• High-Speed/standard cameras</li><li>• Annealing/Passivation</li><li>• Particle Accelerator</li><li>• Vacuum system</li><li>• Nano-structure synthesis</li><li>• In Vivo, In Vitro, In Situ</li></ul>

## ANNEXE - Detailed Professional Experience

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### 2025 – (in progress) Founder (in formation), Full-Stack Developer & Agentic Systems Architect

*UG (in formation), Munich/Regensburg, Germany*

*Cloud-native SaaS and RaaS for secure, enterprise AI automation.*

Building cloud-based agentic systems uniting LLMOps, workflow orchestration, RAG, and ML-based prediction. Emphasis on governance, evaluation, and enterprise compliance with strict guardrails and human-in-the-loop approvals for secure, auditable, and scalable deployment.



#### Cloud Infrastructure & Architecture

Designed full cloud stack (Hetzner) including Docker-based services, REST APIs in Python, CI/CD pipelines, and monitoring. Integrated governance and cost-control mechanisms aligned with enterprise policies.

**Delivered scalable, maintainable, and secure infrastructure supporting AI workflows and agentic automation.**



#### Retrieval-Augmented & Predictive Systems

Developed retrieval pipelines and ML-based prediction modules integrated with LLMOps orchestration. Applied evaluation and rollback strategies to ensure reliability and traceability.

**Enabled accurate, policy-compliant automation with measurable performance improvements.**



#### Human-Centred UX & Security

Built intuitive, accessible interfaces with React (“Grandpa Test” UX) and implemented enterprise-grade security: auth, encryption, and container hardening.

**Improved usability and compliance while maintaining robust operational safety.**



### Enterprise-Level Security Implementation

Implemented multi-layered authentication, encryption at rest and in transit, and fine-grained access control. Hardened server infrastructure and container environments following industry best practices.

**Met or exceeded enterprise-grade security and compliance standards.**



### 2025 - Senior Software Developer / Data Scientist (AI Focus)

*Labor Kneißler (Ariane Group) GmbH & Co. KG, Bürglengenfeld, Germany  
Analytical services for food and consumer goods.*

AI, MLOps, and data science for product classification, dispatching, and operational automation.



### ML-Driven Product Classification System

Redesigned and automated a characterization station workflow: products photographed, OCR applied, and classified for analysis. Developed and deployed first in-house ML model, improving classification accuracy from 40% to 82% using Random Forest. Implemented cloud-based deployment with API endpoints for integration.

**Enabled fast, reliable, and scalable classification for downstream analysis.**



### ML Ops Task Manager Deployment

Took over a partially developed ML task-manager platform, refactored backend logic in Python, containerized with Docker, and deployed to secure cloud infrastructure. Integrated monitoring, logging, and CI/CD pipelines.

**Successfully transitioned the system to production for daily operational use.**



### International Project Leadership within Ariane Group

Planned and executed cross-disciplinary projects spanning mechanics, optics, data acquisition, and AI-driven analysis. Coordinated API integrations and data pipelines across multinational teams.

**Delivered complex projects on time, meeting both technical and operational requirements.**



### State-of-the-Art Project Management Implementation

Introduced modern DevOps and agile practices, including Docker-based staging environments (Dev, Staging, Production), ticketing systems, automated testing, and comprehensive documentation.

**Improved team efficiency, reduced deployment errors, and increased project transparency.**



### 2018-2025 - Software Architect in AI

*eins+null GmbH Co. KG, Regensburg, Germany  
SaaS for energy providers.*

Business Intelligence end-to-end pipelines with scalable deployment. AI, MLOps, Data Science



### AI-Driven Churn Prediction System

Developed a predictive model using contract data, machine learning, and statistical methods to analyze customer behavior. Leveraged advanced techniques such as KDTree for efficient data retrieval and segmentation algorithms for targeted classification of customer profiles, enabling precise identification of high-risk contracts.

**Achieved up to 80% accuracy in identifying contracts likely to terminate, significantly reducing retention marketing costs.**



### AI-Assistant Writer Management System

Developed a customizable platform with advanced prompt engineering for AI-driven drafting of tickets, user stories, and documentation to ensure adherence to internal standards, leveraging internal and external resources for comprehensive support.

**Streamlined chatbot-generated ticket drafting for support teams, ensuring fast, precise outputs in the firm's standard format, and minimizing errors—all delivered within seconds.**



### Scalable Duplicate Check Service for Large Contract Databases

Developed a service to efficiently identify and manage duplicate entries through intelligent token-based filtering and similarity analysis using the Vector Space Model and Natural Language Processing.

**The system analyzes millions of contracts and compares a single contract against 100,000 others in seconds.**



### Quality Management and Automated Testing Service

Dynamic UI testing solution with detailed reporting and streamlined bug detection processes.

**Enhanced bug detection across our software, reducing manual testing.**



### 2009-2016 - Research in Tracking events using Imaging Techniques.

McGill University, Montréal, Canada

**Tracking events from single molecules to cells to organisms via optical imaging.**

Led multidisciplinary projects involving physicists, biologists, and computer scientists, developing advanced imaging and data analysis techniques that automated high-throughput recognition tasks. Contributed to research published in *eLife* and *Bioconjugate Chemistry*, including designing innovative image recognition systems for behavioral analysis and photobleaching pair-correlation methods.

**Co-Author in published article.**



Stoichiometry and Dispersity of DNA Nanostructures Using Photobleaching Pair Correlation Analysis, *Bioconjugate Chem.* (2017)



Endocannabinoid signaling enhances visual responses through modulation of chloride levels in retinal ganglion cells, *eLife* (2016)



**Contributions:** Designed an innovative image recognition system to analyze tadpole behavior in low-light conditions, **automating the analysis of millions of images with high accuracy**, improving data quality, and enabling publication in top peer-reviewed journal *eLife* and media coverage highlighted by *The Guardian*. <https://www.theguardian.com/science/neurophilosophy/2016/oct/27/cannabis-many-enhance-night-vision>

Conference contribution - invited speaker

 MATLAB programming workshop, 3rd annual bionano graduate skills workshop, Montréal, Canada. (2014)

#### Conference contribution - Talks

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-  Identifying active neurons from in-vivo 2-photon calcium imaging via pixel correlation analysis and region-growing segmentation, 58th Biophysical Society Meeting, U.S.A. (2014)
-  Automated behavioral analysis of *Xenopus laevis* visuomotor response using tracking techniques, 9th IGSRS, Montréal, Canada. (2014)
-  Neuronal activity assessed by point pattern analysis on in vivo calcium imaging, Annual Neuro-Retreat, Forêt Montmorency, Canada. (2013)
-  Presented 15+ research findings on neuroimaging and behavioral analysis at the Montréal Neurological Institute's Neuroengineering Meeting series, as part of the NSERC-CREATE Program. (2009-2015)

#### Conference contribution - Poster Session

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-  Mapping CFTR clusters in 3D via single molecule photobleaching analysis in epithelial cells, 60th Biophysical Society Meeting, U.S.A. (2016)
-  Z-profiling of CFTR oligomerization state distributions via single molecule step photobleaching analysis in epithelial cells, 59th Biophysical Society Meeting, U.S.A. (2015)



#### 2005-2008 - Research in Nano-Technologies.

*Université de Montréal, Montréal, Canada*

**Growth and luminescence of silicon nanocrystals in silica using ionic co-implantation.** Leading multidisciplinary projects in nano-science.

-  Impact of Ni co-implantation on Si nanocrystals formation and luminescence, *Nuclear Instruments and Methods in Physics Research Section B* (2009)

## ANNEXE - Extended Python, Data Science & MLOps Skills

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### Data Science

- AI/ML** Supervised/unsupervised models for classification, similarity search, and recognition; OCR & classical computer vision for product characterization.
- Methods** Random Forest, feature engineering, segmentation, KDTree-based retrieval; evaluation and error analysis.
- MLOps** Dockerized training/serving, reproducible pipelines, API-based model serving, CI/CD, logging/monitoring.
- Frameworks** Scikit-learn, Pandas, NumPy (working knowledge: PyTorch, TensorFlow).

### Business Intelligence

- Use Cases** Churn prediction, duplicate detection (NLP/Vector Space Model), quality/UI test automation, LLM-assisted ticket/story drafting.
- Pipelines** End-to-end data ingestion, processing, and deployment for SME BI solutions; focus on reliability and maintainability.

## Programming

- Languages** Python, SQL, MATLAB (plus: PHP, HTML/CSS).
- Web Dev.** Backend with Flask and REST APIs; React frontends with reusable components.
- Deploy** Docker, CI/CD, Git; observability (logging/metrics).
- Cloud** Hetzner (current) and Wavecon deployments.
- Databases** MySQL, Redis; schema design and optimization.
- Security** AuthN/AuthZ, encryption in transit/at rest, hardened services.

## Scientific

- Background** Imaging, automated detection/tracking, data analysis, and experiment setup engineering.
- Modalities** Fluorescence (TIRF, confocal, in vivo calcium), nonlinear (two-photon, THG), Raman spectroscopy, TEM, high-speed imaging.