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| **Marc Joliveau, Ph.D. Principal Applied Scientist** | | | | | |  |
|  | **+1 206 419 2700** |  | [**marc.joliveau@gmail.com**](mailto:marc.joliveau@gmail.com) |  | **linkedin.com/in/marc-joliveau** | |

**Summary**

Applied scientist with 15+ years of expertise in designing and developing innovative science-based software solutions to tackle industries’ toughest most critical strategic and operational problem. Successfully invented and delivered a series of scalable systems improving the experience of millions of customers worldwide in diverse application domains including computer networks, video streaming, resource management or transportation

**Professional experience**

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| **Amazon.com - Seattle, WA (USA) & Vancouver, BC (Canada)** | | | |  |
| **Amazon Web Services (AWS)** | | | | |
| **Principal Applied Scientist** | | | *Since October 2021* | |
| **Senior Applied Scientist** | | | *July 2017 to October 2021* | |
| * Leverage science & innovation to make AWS Networking better, faster, & smarter for customers around the world. * Drive the scientific vision for traffic management within AWS's global infrastructures | | * Invent and develop the next generation of software-defined networking solution for one of the world's largest computer network * Co-founder of AWS Networking’s science excellence board | | |
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| **Amazon.com – Prime Video** |  | | | |
| **Senior Applied Scientist** | | *April 2016 to July 2017* | | |
| **Applied Scientist II** | | *December 2014 to April 2016* | | | July 2017 to October 2021 |
| **Research Scientist II** | | *March 2013 to December 2014* | | |  |
| * Create and develop systems and services optimizing video delivery and streaming experience for Prime Video customers * Conceived and led the development of in-house Prime Video’s bitrate selection algorithms, for its “on Demand” and “Live” streaming products | | * Design and implement forecast models and other algorithms providing deep insights into Prime Video & Amazon Studios growth * Pioneered optimization systems that were critical to many Prime Video’s successful milestones (e.g., worldwide expansion, live streaming onboarding) | | |
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| **CIRRELT – Montreal, QC (Canada)** | |  | | |
| **Post-doctoral fellow** | | *October 2008 to March 2013* | | |
| * Collaborate with medium and large-size business organizations by identifying, developing and delivering innovative models and solutions mixing operations research, applied statistics and computer science * Invented a new approach to design electronic circuits consuming 50% to 70% less power | | * Teach computer science and applied mathematics to undergraduate and graduate students * Generated a 3% growth of the net incomes of a large retailer by optimizing associates’ shift scheduling after predicting customers shopping patterns | | |

**Education**

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| **Ph.D., applied mathematics,** École Centrale Paris(France) -2008 |
| **M.Sc., applied mathematics and computer sciences,** Université Catholique de l’Ouest (France) - 2005 |
| **B.Sc., applied mathematics and social sciences,** Université Catholique de l’Ouest (France) – 2003 |

**Key competencies**

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| **Operations research** | * Heuristic/Metaheuristic (tabu search, variable neighborhood search, genetic algorithm, etc.), Mathematical programming (linear programming, integer programming, constraint programming), Graph theory, etc. |
| **Computer sciences** | * Programming (Python, C++, Java, etc.), Mathematical software (CPLEX, R, etc.), Databases (mySQL, etc.), System design??? ETC |
| **Applied statistics** | * Data analysis, Data mining, Activity recognition, Forecasting, Machine learning, etc. |

**Languages & Right to Work**

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| Bilingual (**French** and **English)** | Dual citizen (**France** and **USA**) |

**Patents Issued (30)**

* US 11190566 - **Generating requests for streaming media (November 2021)**
* US 11102535B1 - **Adjusting parameter settings for bitrate selection algorithms (August 2021)**
* US 11095699B1 - **Streaming media file management (August 2021)**
* US11089321B1 - **Content adaptive encoding (August 2021)**
* US 10771855 - **Deep characterization of content playback systems (September 2020)**
* US 10735489 - **Mid-stream content delivery network switching (August 2020)**
* US10708331 - **Generating requests for streaming media (July 2020)**
* US10666698 **- Bit rate selection for streaming media (May 2020)**
* **US 10313759B1** - Enabling playback and request of partial media fragments (Issued on June 4 2019)
* **US 10313419B1** - VBR encoding of live content (Issued on June 4 2019)
* **US 10305721B1** - Content delivery using gossip protocols (Issued on May 28 2019)
* **US 10277928B1** - Dynamic manifests for media content playback (Issued on April 30 2019)
* **US 10277669B1** - Communication channel between device and CDN during playback (Issued on April 30 2019)
* **US 10091265B2** - Catching up to the live playhead in live streaming (Issued on October 2 2018)
* **US 10038758B1** - Content delivery network balancer (Issued on July 31 2018)
* **US 9992242B2** - Live stream manifests for on demand content (Issued on June 5 2018)
* **US 9866459B1** - Origin failover for live streaming (Issued on January 9 2018)
* **US 9787745B1** - Content delivery (Issued on October 10 2017)
* **US 9742749B1** - Live stream encryption (Issued on August 22 2017)
* **US 9712860B1** - Delivering media content to achieve a consistent user experience (Issued on July 18 2017)
* **US 9686332B1** - Live stream manifests for on demand content (Issued on June 20 2017)
* **US 9497243B1** - Content delivery (Issued on November 15 2016)
* Visionary leader, customer obsessed, result oriented, energetic and determined, with sharp analytic skills and a strong interest for complex and intellectually stimulating problem-solving challenges using simple innovative approaches and creative design

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| **Giro Inc.** | Montreal, QC (Canada) |
| **Analyst programmer, operational research** | *April 2008 to October 2008* |
| Mission & responsibilities:   * Developed new features for a software package in order to support the specific requirements of new and existing customers | |
| Key Accomplishments:   * Implemented new features allowing the system to capture critical contractual and topological modifications from one of the firm’s top customer | |

* Define and analyze key performance indicators measuring Prime Video's playback performance to support leadership’s tactical and strategic decision process

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| **Ph.D., applied mathematics** | *École Centrale Paris**(France) -**2008* |
| * Dissertation: Identifying and forecasting unusual traffic behavior in an urban road network   fff | |
| **M.Sc., applied mathematics and computer sciences** | *Université. Catholique de l’Ouest (France) -2005* |
| * Dissertation: Minimizing the lateness of vehicles in station after unexpected disturbances when operating a large train fleet inside a high-density rail network | |
| **B.Sc., applied mathematics and social sciences** | *Université Catholique de l’Ouest (France) -2003* |
| * Dissertation: Optimizing resources management for a high school | |
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