Faisal Habib

faisal.habib@live.com https://www.linkedin.com/in/faisal-a-habib

QUALIFICATIONS

Results oriented professional with proven skills in management, product design & strategy, and analytics. Background in quantitative analytics, ML/AI, business management, and computer engineering.

EMPLOYMENT EXPERIENCE

Management

- Oversight of analytic modelling research group with responsibilities for commercialization of group's R&D outcomes, management of the technical team and research portfolio as well as setting of operational budgets.
- Generate research and product development roadmap that is closely aligned with strategic firm-level initiatives.
- Manage a team of financial quants, software developers, mathematicians, financial & actuarial analysts to develop analytic solutions in the retirement income and wealth management space using advanced mathematical, machine learning & AI techniques.
- Monetize the groups' research through the development of software applications customized as per client requirements.
- Engage in business development activities and forge strong relationships with clients (US and Canada) in understanding their needs and requirements and showcasing the group's research initiatives to promote adoption of analytics for decision making.
- Experience with managing a startup and fulfilling multiple roles as it relates to the launch of product and services, sales & marketing, and merger/acquisition.
- Serve as subject matter expert (internally & externally) working with clients, regulators, and media in addressing the challenges encountered within the industry.
- Public speaking engagements at various conferences and trade shows.
- Liaise with attorneys for patent applications and contract negotiations.
- Collaborate with research institutes such as The Fields Institute and Mitacs to engage specialized domain specific researchers to complement in-house research initiatives.

Product Development

- Collaborate with marketing to assess market needs and develop specifications for new products.
- Work with financial industry regulators to determine suitability of exchanges of complex structured products. These products are not only based on economic variables but also exotic parameters such as human mortality.
- Manage cross functional projects as it relates to the development of new services and expansion of current services.
- Generate requirements documents and design specifications for new products along with development budgets and schedules.
- Participate in industry trade shows as well as represent the organization at various task force meetings of industry standards bodies, such as SAE and ISO, to determine compliance.

Project Management

- Manage research and software development projects from initial concept to final delivery.
- Define roles and responsibilities, assign appropriate resources to complete the scope of the project within time and cost constraints.
- Attend management meetings with clients to track progress, meeting client's expectation in terms of quality, cost, budget, training, and timely delivery.
- Coordinate with product design teams, service departments, and contract manufacturers to architect test solutions for new products.
- Develop proposals, and cost estimates for prospective clients, and perform cash flow analysis.

Research and Software Design

- Proficiency in C/C++, Python, .NET C#, MATLAB, SQL, LabVIEW, and R. Experience with programming on Windows, MacOS, and UNIX/Linux operating systems with a variety of libraries (PyTorch, Intel Cilk, Intel MKL).
- Designed highly specialized libraries to solve partial differential equations using finite difference schemes.
- Combined Nelder Mead search with gradient descent to develop a nonlinear search algorithm to find optimal allocations to products within 2-3 minutes reducing the need for an exhaustive search taking upwards of 2 hours.
- Developed a stand-alone software application (PrARI) that provides guidance on product allocation for retirement income. The application analyzes a clients' income sustainability in retirement as well as legacy.
- Developed a custom application to extract raw mfERG data from test instrument for machine learning tasks. Applied signal conditioning to denoise waveforms before feature extraction. Features include waveform amplitude, FFT components, and signal statistics. Developed a classification model using ML/AI techniques. Utilized Support Vector Machines that improved the sensitivity of the current quantitative method that relies on ratio analysis.
- Develop airbag and vehicle crash test applications by controlling data acquisition systems and high-speed cameras. Develop algorithms for the analysis and signal processing of crash test data and video enhancements.
- Design, develop, and manage the Balance Machine project for Teco-Westinghouse's manufacturing plant. Project involved vibration analysis and balance weight calculations for industrial rotors running at high speeds using proximity probes, accelerometers, and software Fast Fourier Transform (FFT) algorithm.
- Design, develop, and maintain device driver software and application software for GPIB communications on the Macintosh and Windows platform.

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WORK HISTORY

Business Development & Management	Health Analytics and Advanced Modelling -- Fields Institute	Mar. 2021 – Present
Lecturer	Schulich School of Business (BBA & MFin Programme)	May 2012 – Present
MScAC Research Internship	Kensington Vision and Research Centre	May 2020 – Dec. 2020
VP Research	CANNEX Financial Exchanges Limited	Oct. 2013 – Aug. 2019
COO	The QWeMA Group (acquired by CANNEX)	Jan. 2008 – Sep. 2013
Senior Design Engineer	Microsys Technologies, Inc.	Apr. 2005 – Jan. 2008
Engineering Consultant	eWeb Enterprises, Inc. (Psion Teklogix, Mark IV, and Compuware)	Nov. 1999 – Mar. 2005
Staff Software Engineer	National Instruments Corporation	Nov. 1996 – Apr. 1999

EDUCATION

MSc Applied Computing, December 2020
University of Toronto
GPA: 3.93/4.00

Post Graduate Diploma Financial Engineering, June 2008
Schulich School of Business, York University
GPA: 7.80/9.00

MBA Business Management, December 2000
St. Edwards University
GPA: 3.81/4.00

BS Electrical Engineering (Highest Honors), May 1996
The University of Texas at Austin
GPA: 4.00/4.00

Professional License and Certification:

- Financial Risk Manager (GARP)
- Professional Engineer (Ontario)

Academic Awards:

- Vector Scholarship in Artificial Intelligence (2019)
- Addictive Mobility Scholarship in Applied Computing (2019)

PUBLICATIONS

Habib, F., Huang, H., Mauskopf, A., Nikolic, B. and Salisbury, T., Optimal Allocation to Deferred Income Annuities (November 9, 2018). Available at: https://www.sciencedirect.com/science/article/pii/S0167668718304827

Habib, F., Huang, H. and Milevsky, M., Approximate Solutions to Retirement Spending Problems and the Optimality of Ruin (March 31, 2017). Available at SSRN: https://ssrn.com/abstract=2944125

Habib, F., 2017, Spending in Retirement. Available at http://bit.ly/SpendingInRetirement

TECHNICAL SKILLS

Programming Languages:	Python, C/C++, .NET C#, VBA, R, MATLAB, LabVIEW
	Object Oriented Programming (OOP) Methodology & Design Patterns
API:	PyTorch, NumPy, Scikit-learn, MKL, Intel Cilk, Intel TBB, NI Data Acquisition Libraries
Databases:	Microsoft SQL Server, MySQL, Microsoft Access

OTHER ACTIVITIES & INTEREST

Volunteer Math Instructor (Middle School/High School Mathematics)
Long Distance Running
Landscape Photography