Reinforcement Learning

<https://s3-us-west-1.amazonaws.com/udacity-drlnd/bookdraft2018.pdf>

The BigChaos Solution to the Netflix Grand Prize, by Andreas T¨oscher and Michael Jahrer

<https://www.netflixprize.com/assets/GrandPrize2009_BPC_BigChaos.pdf>

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**Job Description**

**Organization: Accenture Federal Services  
Location: Arlington, VA - Washington, DC**  
  
Accenture Federal Services, a wholly owned subsidiary of Accenture LLP, is a U.S. company with offices in Arlington, Virginia. Accenture's federal business has served every cabinet-level department and 30 of the largest federal organizations. Accenture Federal Services transforms bold ideas into breakthrough outcomes for clients at defense, intelligence, public safety, civilian and military health organizations.

We believe that great outcomes are everything. It’s what drives us to turn bold ideas into breakthrough solutions. By combining digital technologies with what works across the world’s leading businesses, we use agile approaches to help clients solve their toughest problems fast—the first time. So, you can deliver what matters most.

Count on us to help you embrace new ways of working, building for change and put customers at the core. A wholly owned subsidiary of Accenture, we bring over 30 years of experience serving the federal government, including every cabinet-level department. Our 7,200 dedicated colleagues and change makers work with our clients at the heart of the nation’s priorities in defense, intel, public safety, health and civilian to help you make a difference for the people you employ, serve and protect.

The Machine Learning Engineer develops machine learning solutions to meet business use cases and to support experimentation and innovation to advance mission outcomes. The engineer collaborates with business SMEs, architects, data engineers, developers and data scientists to identify innovative machine learning solutions that leverage data to meet business goals. The machine learning engineer ensures infrastructure and data pipelines are structured to deploy machine learning solutions.  
  
Key Responsibilities:  
  
- Understand and translate business and functional needs into machine learning problem statements  
- Translate complex machine learning problem statements into specific deliverables and requirements  
- Design and develop scalable solutions that leverage machine learning and deep learning models to meet enterprise requirements  
- Work closely with data scientists and data engineers to develop machine learning algorithms  
- Work on Optimization of Neural Net and Deep Learning models for inference  
- Translate machine learning algorithms into production-level code  
- Collaborate with development teams to test and deploy machine learning models  
- Create metrics to continuously evaluate the performance of machine learning solutions  
- Maintain and improve the performance of existing machine learning solutions  
- Ensure adherence to performance standards and compliance to data security requirements  
- Keep abreast with new tools, algorithms and techniques in machine learning and works to implement them in the organization  
  
Skills:

- Proficiency in machine learning algorithms such as multi-class classifications, decision trees, support vector machines and deep learning  
- Strong understanding of probability and statistical models (generative and descriptive models)  
- Ability to run experiments scientifically and analyze results  
- Ability to effectively communicate technical concepts and results to technical and business audiences in a comprehensive manner  
- Ability to collaborate effectively across multiple teams and stakeholders, including analytics teams, development teams, product management and operations  
- Strong Computer Science fundamentals in algorithms, data structures, OOPS, functional programming

**Qualifications**

**Basic Skills and Qualifications:**

* 1 year of experience in building and evolving complex software systems for data processing and machine learning workloads
* 1 year of experience with Big Data processing and ML cloud native services on one or more Cloud Platforms (GCP, Azure and/or AWS)
* 1 year of experience with productionizing developed machine learning solutions
* 1 year of knowledge and experience with databases – SQL, NOSQL
* 1 year of experience with Python

**Preferred Skills and Qualifications:**

* Strong grasp of principles and approaches used in data-driven systems, processes and algorithms
* Experience with ML algorithms for time series data-sets
* Experience with stream processing frameworks / complex event processing engines
* Scripting skills in at least one of the following: Shell, Perl, Bash, or Ruby
* Experience with performance engineering including testing, tuning and monitoring tools
* Basic familiarity with continuous integration tools and frameworks