Streaming Anomaly Detection

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Abstract:
Sensors on the Internet of Things generate vast quantities of streaming data. Examples include data from wearables, home monitoring devices and traffic sensors. Fast and reliable detection of anomalies on these streams has value to people and organizations. Given the data’s speed and scale, human monitoring is impossible. Manually configured thresholds to set alarms, e.g., flag an alarm if a measurement drops below 100 ticks/minute has led to alarm fatigue. In this talk, we describe an algorithm that can automatically detect anomalies in high-speed, numeric, multi-dimensional data streams. We describe the algorithm’s performance on public data.

Bio:
Nina Mishra is a Principal Scientist at Amazon in Palo Alto, CA. Her research interests are in data science, data mining, web search, machine learning and privacy.

Mishra has over 16 years of experience leading projects in industry at Microsoft Research and HP Labs and over 6 years of experience in academia as Associate Professor at the University of Virginia and Acting Faculty at Stanford University. The projects that Mishra pursues encompass the design and evaluation of new data mining algorithms on real, colossal-sized datasets.

She has authored ~ 50 publications in top venues including: Web Search: WWW, WSDM, SIGIR; Machine Learning: ICML, NIPS, AAAI, COLT; Databases: VLDB, PODS; Cryptography: CRYPTO, EUROCRYPT; Theory: FOCS and SODA.

She has been granted 13 patent applications with a dozen more still in the application stage.

SEMINAR NOTES: (REFRESHMENTS SERVED AT 4:30 PM)