Gas turbine development and its monitoring.

Gas turbines are the high-tech machines used as jet engines in military airplanes as well as in private aviation. Gas turbines are also used as prime movers in industrial application for mechanical drive and for power generation.
The latest development of gas turbines in the field of power generation has resulted in high efficiencies and low emissions, thanks to very sophisticated solutions like cooled blades of single crystal, active clearance control and so on.
The drawback of this development is sensitive and costly components and subsystems. Increased availability and reduced maintenance cost of gas turbine plants requires continues monitoring.

There are various methods and techniques available for plat monitoring. One of the promising methods for development of monitoring tools is Artificial Neural Networks (ANN).
ANN is a data driven method for modelling and monitoring with learning capability. Based on real plant data one can develop monitoring tools based on ANN, fast enough for online monitoring applications and early warning system.
This presentation gives a brief background to gas turbine development and an introduction to ANN-based monitoring tools.

Mohsen Assadi, PhD
Professor in Natural Gas Technology
Department of Mechanical and Structural Engineering and Materials Science