Neil Gordon, B.Eng, MBA

President, CEO and Founder
Guanine, Inc.

Neil is a business executive with over 30 years experience in the development and commercialization of cutting edge products and services, including 4 companies that he founded or co-founded. His career began in software development involving virtual prototyping, flight simulation, queuing models and AI for bid pricing. In the past 20 years he focused on how nanotechnology, biotechnology, information technology and artificial intelligence can be used to detect ultra-low levels of biological materials and more accurately diagnose diseases and outbreaks. Neil was one of the nanotechnology sector's first business consultants and was involved in the evolution of nanomedicine, nanobiosensors and nanosensor fabrication including initiatives for the Government of Taiwan's national lab ITRI, the Canadian Government's national lab NRC, and numerous companies and venture capitalists. He founded the Canadian NanoBusiness Alliance and headed commercialization for the NASA-led CANEUS consortium for Micro and Nano Technologies in the Aerospace and Defense Industry where he interacted with NASA and DOD scientists in next generation nanotechnologies. Neil subsequently spun out a company from NASA's Ames Research Center and transitioned NASA's ultrasensitive carbon nanotube biosensor into an automated water sampling and detection instrument where he co-invented an instrument for remotely detecting water-borne pathogens.

Neil later founded Guanine Inc and discovered that polyguanine oligonucleotides can self-assemble into guanine-quadruplexes and emit a high amplitude electrical signal from 8-oxoguanine oxidation. In the performance of a CDC SBIR grant Neil's team demonstrated the platform in a hybridization sandwich assay using 16S rRNA from lysed Klebsiella pneumoniae carbapenemase (KPC). KPC detection and antimicrobial susceptibility testing was achieved in under 1 hour using a hand-held potentiostat instead of 2 – 4 days employing isolation, culture and/or PCR. Neil patented an artificial intelligence platform that can diagnosis diseases and outbreaks from 8-oxoguanine signals associated with body and environmental samples, pattern recognition of rashes, and other inputs from patients, healthcare professionals and cloud-based databases. Neil is currently leading the development of an integrated Lyme disease diagnostic platform which includes (1) a rapid, simple, and inexpensive quantitative test for measuring multiple Borrelia strains and species, anti-Borrelia antibodies, and co-infections in a POC cartridge from a finger-prick whole blood sample that can be collected by a technician or a patient, (2) a modified potentiostat reader that will operate the test, display results, store the outcome in a cloud database, and transmit results to a medical database, doctor or a telehealth professional, (3) a pattern recognition tool that can interpret Erythema migrans (EM) from photos, and (4) an AI algorithm that can assist individuals and their doctors to more effectively diagnose and treat Lyme disease using a user interface that solicits information about the patient's symptoms and health, and applies differential diagnosis associated with multiple Lyme disease manifestations, Lyme disease symptoms, correct and incorrect EM presentations, and non-medical treatment options used for chronic Lyme disease involving diet, off-the-shelf supplements, exercise and lifestyle choices. Personalized treatment options will also be suggested based on patient-centric conditions described by the patient. The tool will provide a recommendation to the individual and their physician along with all supporting information to allow them to make the most informed decisions.