# New Directions: An Announcement from GIT on their work using AI as a New Tool for the Origin Determination of Gemstones
# 新方向：來自 GIT 的公告
# GIT 致力將人工智能作為寶石產地鑑定的新工具

**The Gem and Jewelry Institute of Thailand (Public Organization)**

*Website: www.git.or.th  Email: bd@git.or.th*

市場對寶石原產地鑑定越來越殷切。GIT泰國珠寶學院在為期3年的項目之首階段，成功開發了人工智能和機器學習系統，根據寶石化學指紋精確地確定紅寶石的主要礦床來源，準確率逾90%。團隊進一步從已知樣本中輸入更多數據，並在常規實驗室中進行實際測試，獲得更可靠的讀數。除了紅寶石，該項目還將開發人工智能運算，在未來幾年涵蓋藍寶石和祖母綠的產地鑑定。

For some years now, the voices of Millennial consumers have been heard echoing through the Gems and Jewellery industry from the retail sector right down to the mines. If Millennials are going to buy jewellery, they want to know not only what it is and whether it is natural or lab produced and enhanced in some way, but also that it has been responsibly sourced and where it comes from.

Origin determination of gemstones is one of the most challenging issues for the gem and jewellery industries. In the past this was often largely just used as a marketing tool, enabling vendors to declare a stone's rarity and thus charge a higher price for it, but now, and certainly in large part driven by the modern consumer's need-to-know approach to purchasing, origin determination has become a crucial part of the industry's attempts to build a responsible and ethical supply chain. Although simply knowing that a stone originated in a certain country does not necessarily guarantee that the particular mine of origin is ethically operated, new work that can assist in a more precise conclusion will lead in this direction and is of great importance to the world of gemmology.

GIT is a Thai government authority. Its main objective is to support the country's increasingly globally competitive gem and jewellery industry. In 2020, recognising the issues facing the industry, GIT started a research programme, which seeks to identify methods of applying AI technology for the purpose of gemstone origin determination. The goal of this project is to increase the reliability of test results and eliminate any possible biases. During the first phase of the 3-year project an AI and machine learning system has been successfully developed using algorithms to determine the precise geographical origin of ruby from major deposits, based on their chemical fingerprint, with more than 90 percent accuracy. Now, GIT is proud to announce that further work is underway, with the input of more data from known samples and real-life testing in the routine lab protocol in order to enhance the algorithm and obtain still more reliable readings. As well as ruby, the project will be developing AI and machine learning algorithms to cover sapphire and emerald origin determination in the coming years.

The success of the first phase of this project shines a bright light on the future use of AI technology in gem testing; reshaping the work of the research gemmologist, ushering the gem testing laboratory into a new era and taking new steps along the path to transparency of supply.

An article reporting on the progress and efficacy of this project will be featured in next year's GAHK Journal.