

AI-Driven Photoluminescence Modeling and Experimental Study of Luminescent Silicon Quantum Dot Ink for Quantum Communication Applications

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Publication date	2025/11/21
Conference	2025 International Conference on Artificial Intelligence for Computing, Astronomy and Renewable Energy (AICARE)
Pages	1-5
Publisher	IEEE
Description	Luminescent materials based on silicon are of good quality and at the same time, they can be used for integrated photonic systems meant for quantum communication. The present paper deals with the study of silicon luminescence from quantum dot ink as a quantum emitter. Moreover, it provides a model for the inked photoluminescence by employing machine learning. Four different regression models were used for the evaluation - MLP, Random Forest, Decision Tree, and Linear Regression. The optimised model, Random Forest got the highest accuracy based on MAE, MSE, and R^2 scores. This combination of quantum photonics and AI modeling gives an idea of the emission dynamics and also facilitates the invention of fast and efficient nextgeneration quantum communication technologies.
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An Intelligent Multi-Modal AI Framework for Interview Simulation with Speech Recognition and Real-Time Feedback

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Publication date 2025/11/21

Conference 2025 International Conference on Artificial Intelligence for Computing, Astronomy and Renewable Energy (AICARE)

Pages 1-6

Publisher IEEE

Description The creators of this system also empowered it with an intensity and versatility that can mimic the real interview situations pretty close. With the help of voice recognition tailored to the job role, exclusive question repositories, and dynamic feedback systems, the system is able to produce very credible and lively scenarios that are very helpful in the preparation and support of the candidates as well. Candidates are divided into three main categories, namely: technical skill, language skill, and emotional intelligence. The user interface frontend is developed using Next.js and the backend processes are handled by Node.js. The architecture of the system is designed in such a way that it can support a high volume of users who can access it quickly and at the same time with almost no delay, and Neon DB handles the databases at an exceptionally fast and serverless like manner for the management of system databases ...

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