

# NEWSLETTER

ISSUE

# 01

June  
2025



### Heterogeneously Integrated Multi-Material Photonic Chipllets for Neuromorphic Photonic Transfer Learning AI Engines



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## Consortium



## GRANT AGREEMENT

101194393

## DURATION

01/10/2024 – 31/09/2027

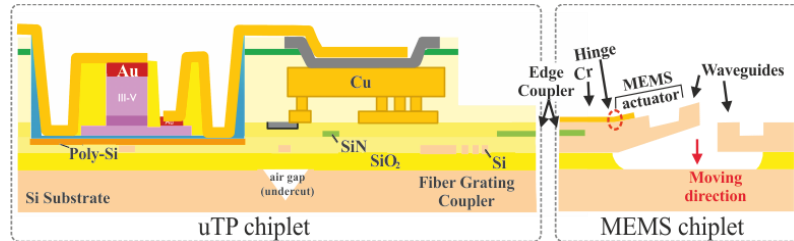
## WEBSITE

<http://www.haetae.eu>

## HAETAE at a glance

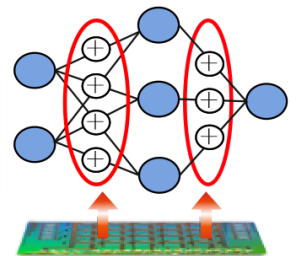
### Obj 1 :

Develop multi-material photonic integration platform



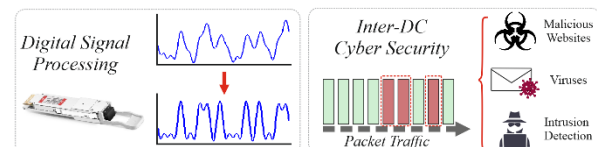
### Obj 2 :

"Optics-informed" co-design approach



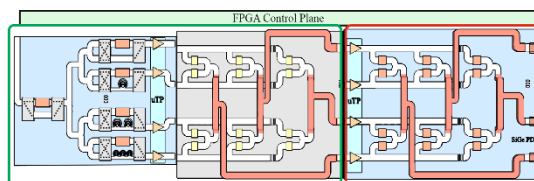
### Obj 4 :

Validate in cybersecurity and AI-assisted DSP use-case

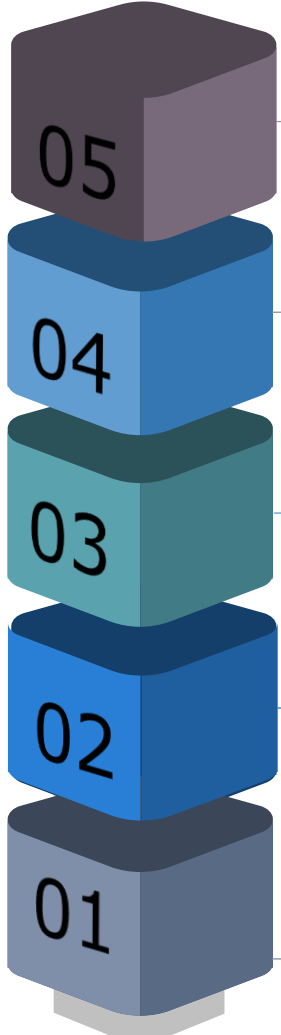


### Obj 3 :

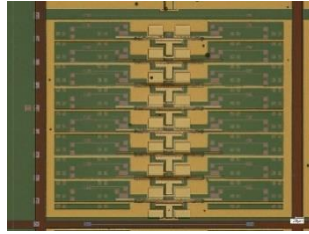
Deploy multi-chiplet Photonic Transfer Learning Engines



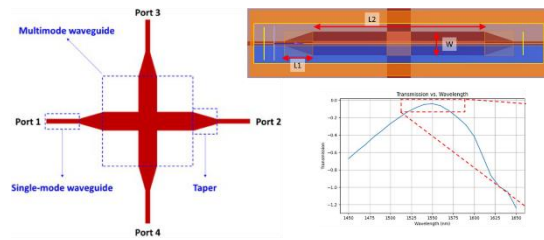
# Milestones & Technical Progress



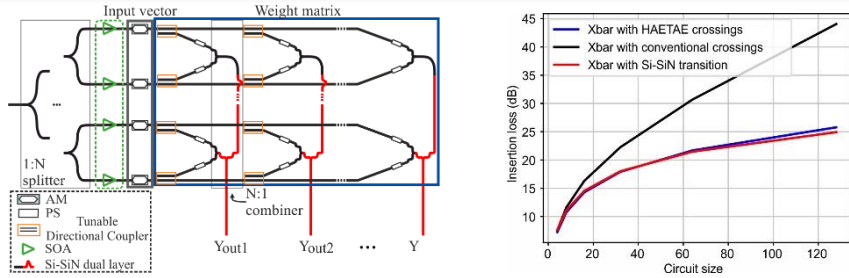
**Development of prototype utP InP SOAs for non-linear activation function modules**



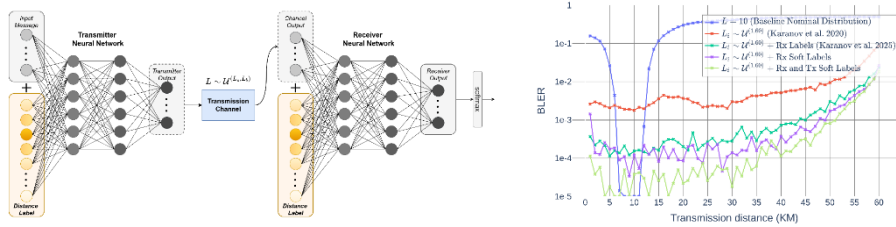
**High Performance waveguide crossings for high-scale matrix multipliers**



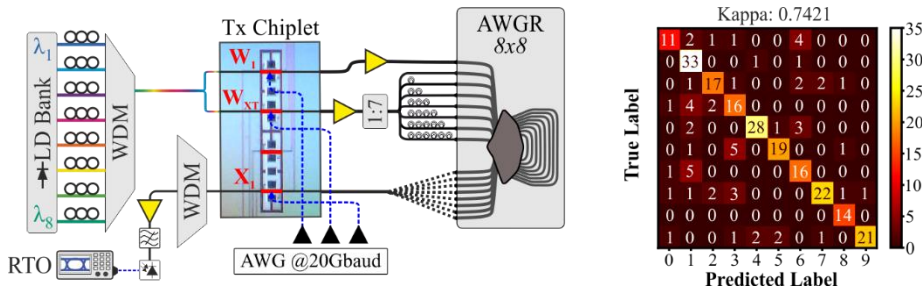
**Si/SiN dual layer Xbar architecture enabling low-loss designs**



**Distance Agnostic end-to-end autoencoder**



**AWGR-tensor core MNIST-classifier at 20 Gbaud**



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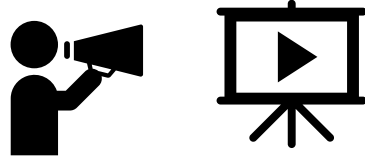
[www.facebook.com/aetae.project](https://www.facebook.com/aetae.project)



<https://www.linkedin.com/company/haetae>



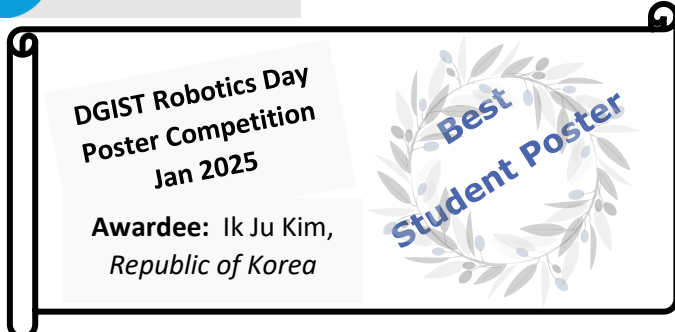
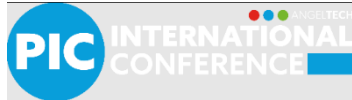
# Dissemination & Communication Activities



3 Journals - 2 Invited talks

HAETAE Booth in PIC International

Best Poster in Robotics Day Competition



<https://sites.google.com/view/ymntuaphysicsday2025/home>

2025 International Semiconductor Researchers Forum		
Date: June 16, Mon (Session room: 301)		
11:50-12:10	20'	Development of AI Accelerators Leveraging Silicon Photonics Technology
		Sangyoon Han (DGIST)

Invited

<https://gcm2025.org/index.php?GP=pro/special>



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