

Gestión Energética Autónoma mediante Planificación Jerárquica en Espacios Latentes Aprendidos

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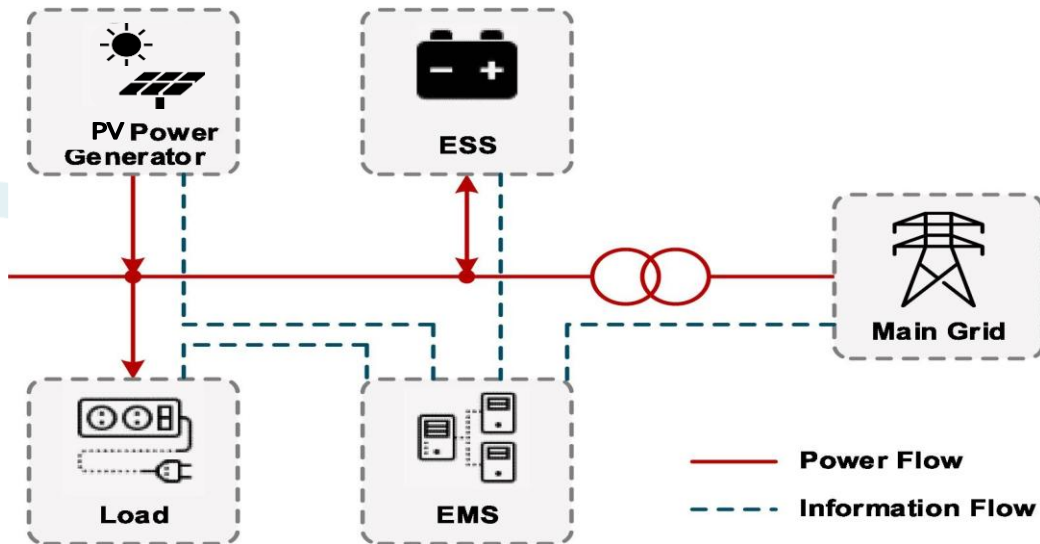


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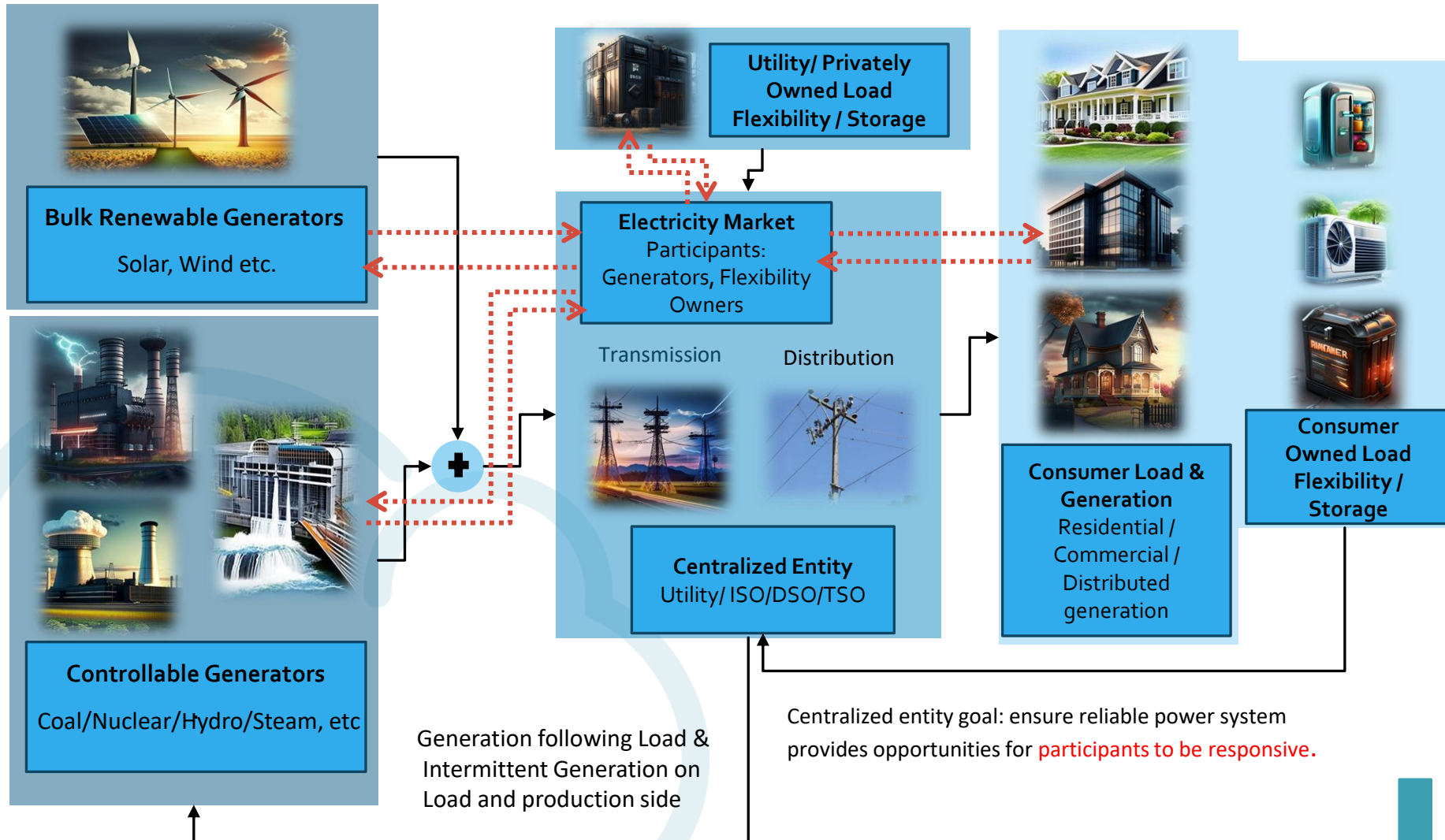


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- Será posible tener una gestión segura de redes inteligentes y un uso más efectivo de la energía con inteligencia artificial.



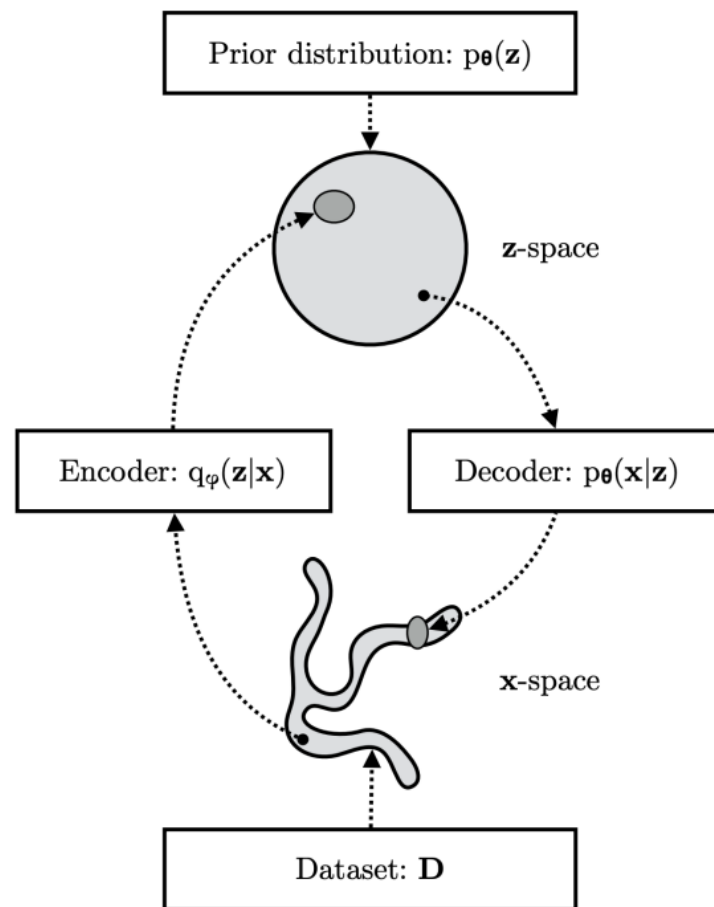
Motivación: Transformación del sistema eléctrico



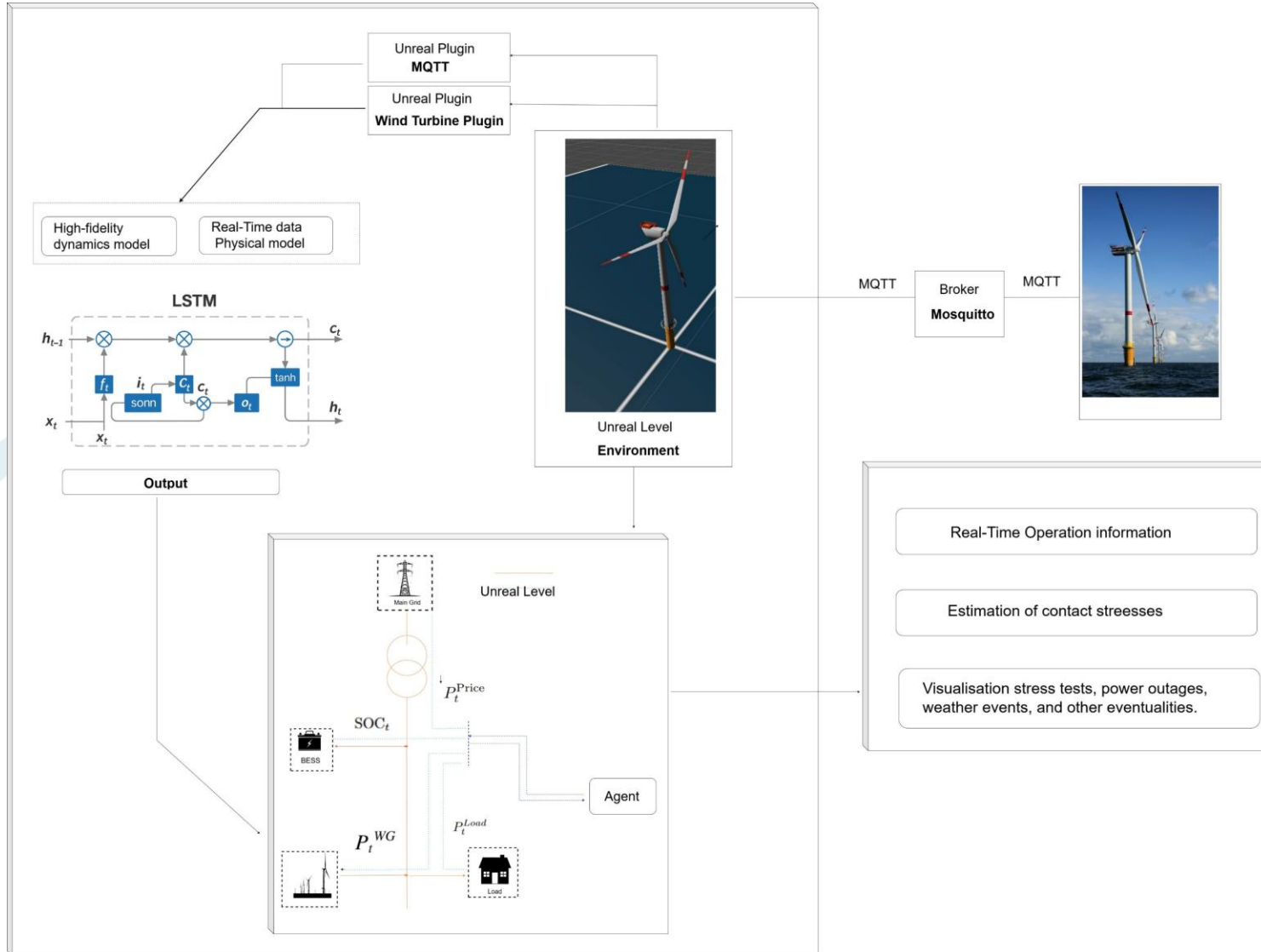
Recap of previous lecture

Variational autoencoder (VAE)

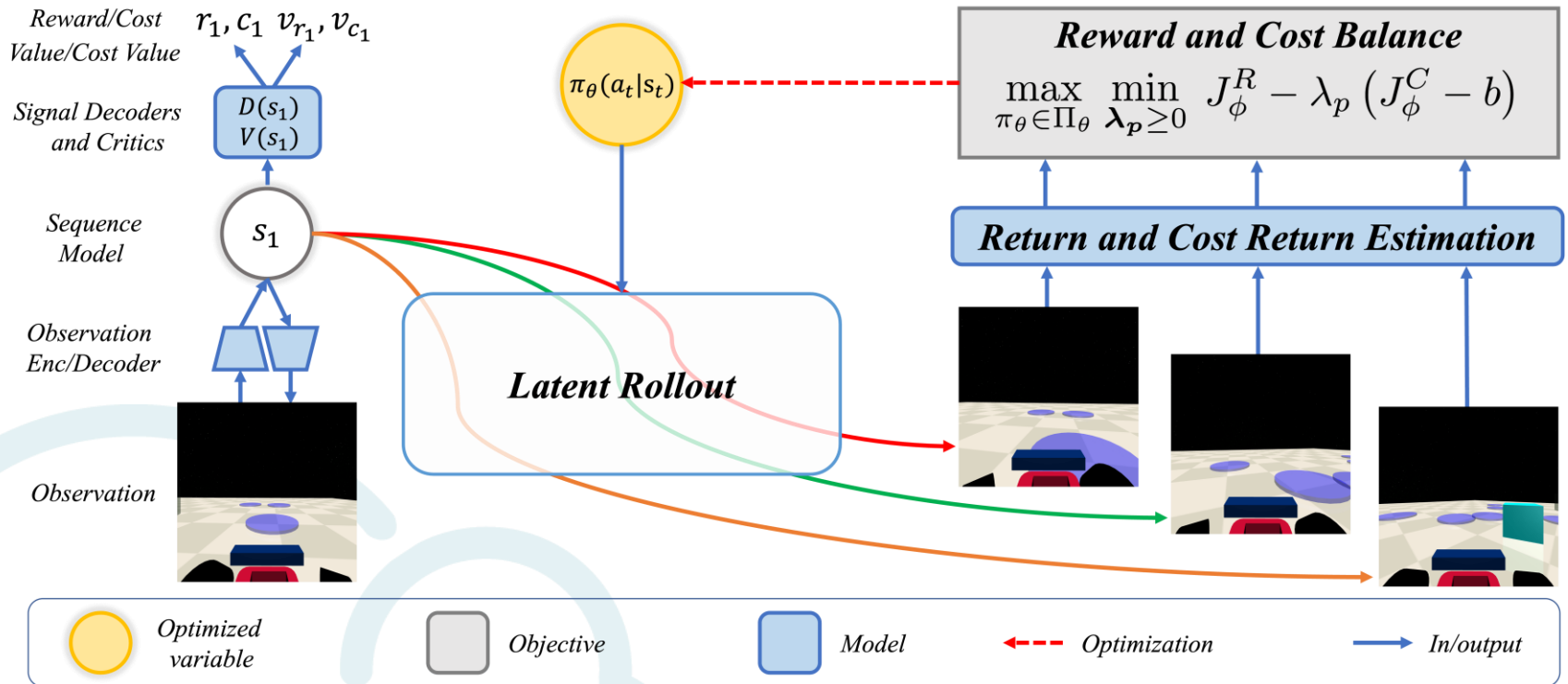
- ▶ VAE learns stochastic mapping between $\mathbf{x}$ -space, from $\pi(\mathbf{x})$, and a latent $\mathbf{z}$ -space, with simple distribution.
- ▶ The generative model learns distribution $p(\mathbf{x}, \mathbf{z} | \boldsymbol{\theta}) = p(\mathbf{z})p(\mathbf{x} | \mathbf{z}, \boldsymbol{\theta})$, with a prior distribution $p(\mathbf{z})$, and a stochastic decoder $p(\mathbf{x} | \mathbf{z}, \boldsymbol{\theta})$.
- ▶ The stochastic encoder $q(\mathbf{z} | \mathbf{x}, \boldsymbol{\phi})$ (inference model), approximates the true but intractable posterior $p(\mathbf{z} | \mathbf{x}, \boldsymbol{\theta})$.



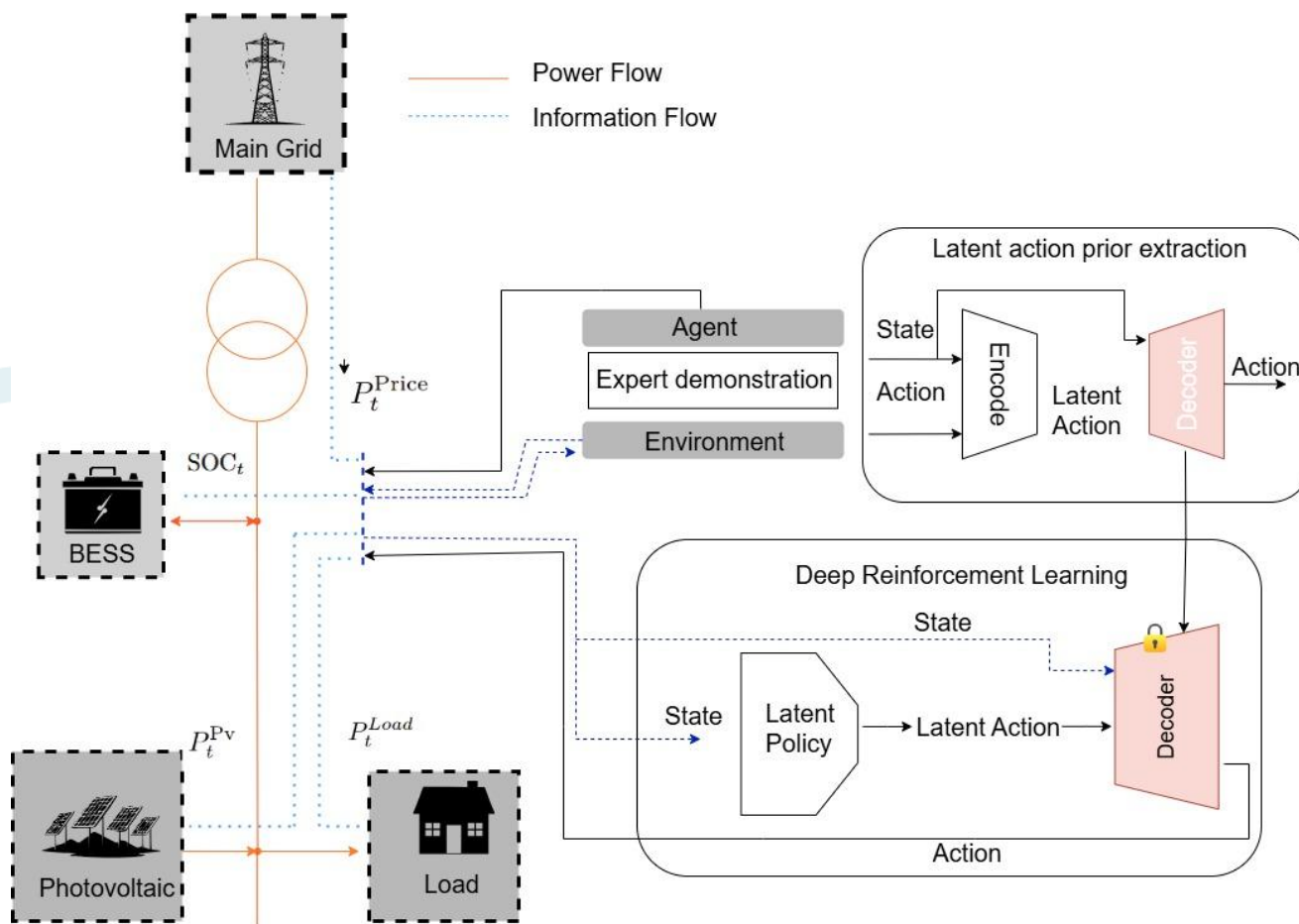
DRL-based microgrid control

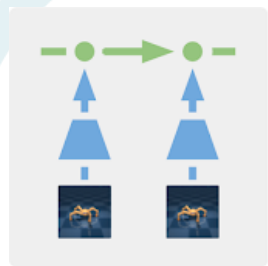
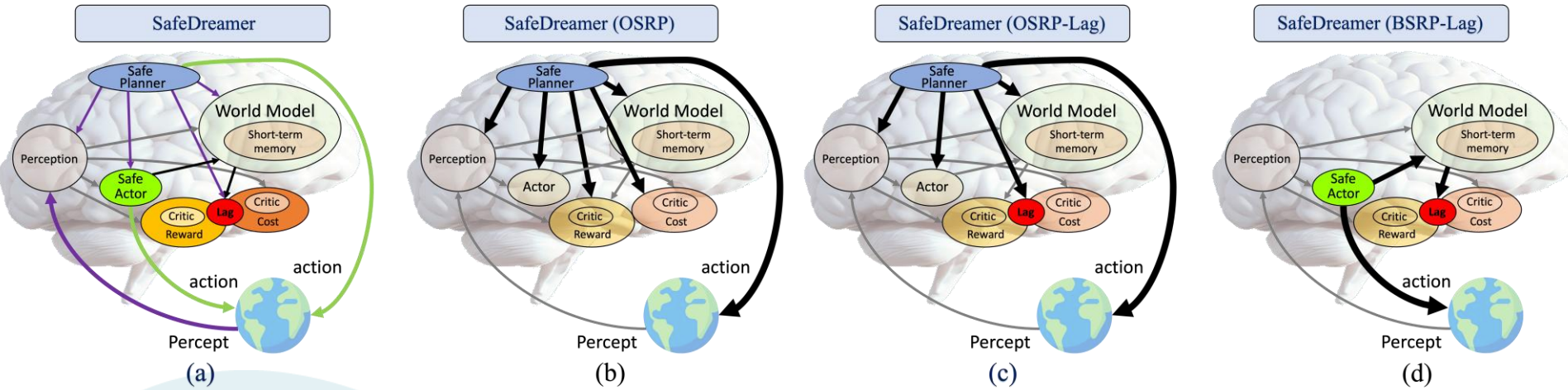


DRL-based microgrid control

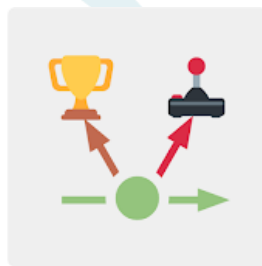


DRL-based microgrid control technique for energy management

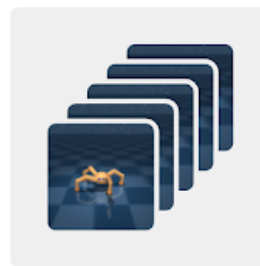




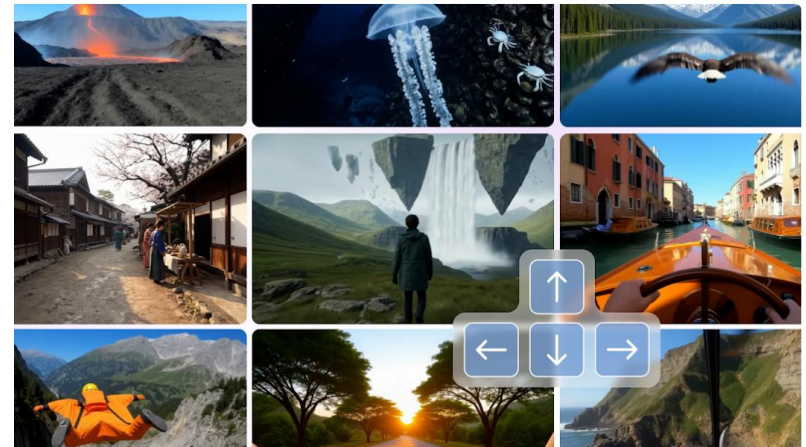
World Model Learning



Learning Value and Actor Networks



Environment Interaction



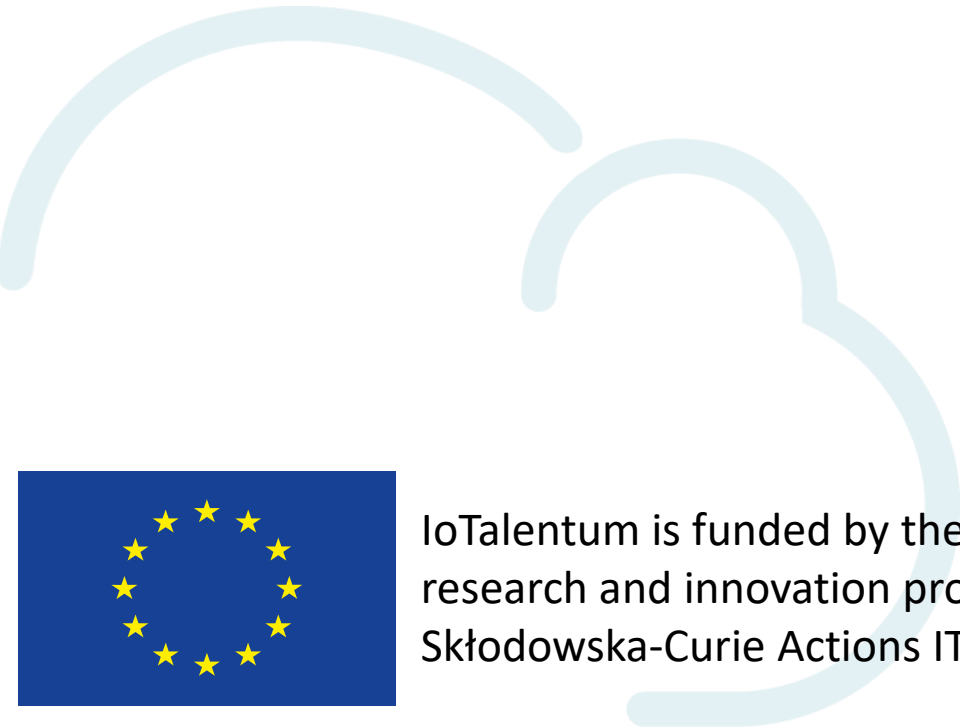


Journal and Conference Papers

- Martín DG, Florez SL, González-Briones A, Corchado JM. COSIBAS Platform-Cognitive Services for IoT-Based Scenarios: Application in P2P Networks for Energy Exchange. *Sensors (Basel)*. 2023 Jan 14;23(2):982. doi: 10.3390/s23020982. PMID: 36679779; PMCID: PMC9866949.
- FLÓREZ, Sebastián López, et al. AI-Optimized Energy Management for More Efficient and Sustainable Microgrids. En *International Symposium on Distributed Computing and Artificial Intelligence*. Cham: Springer Nature Switzerland, 2023. p. 438-447.



Thank You!



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