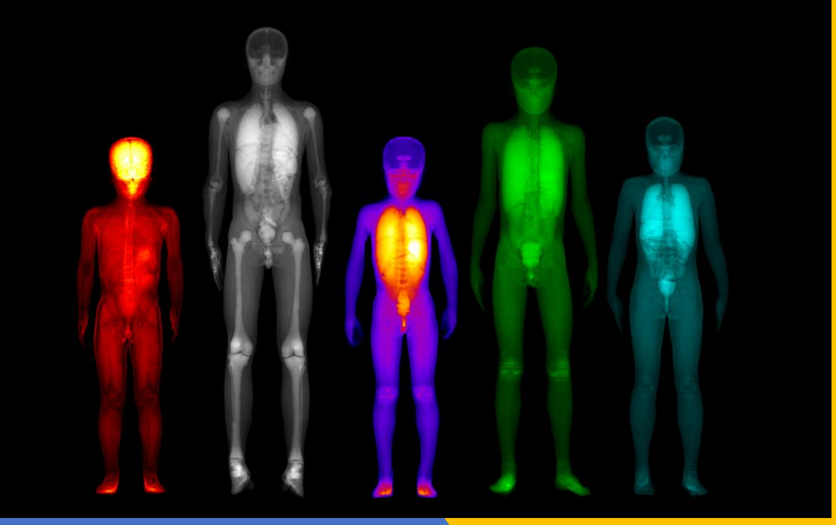
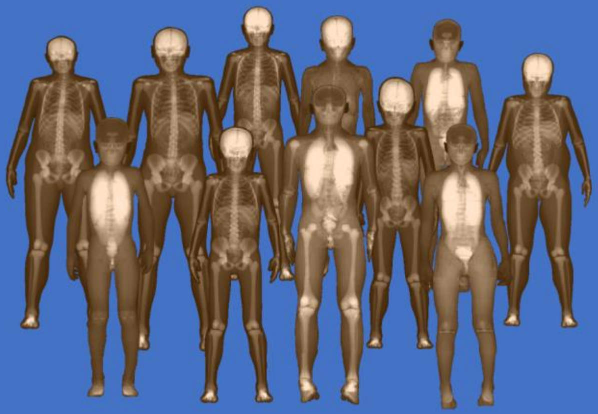
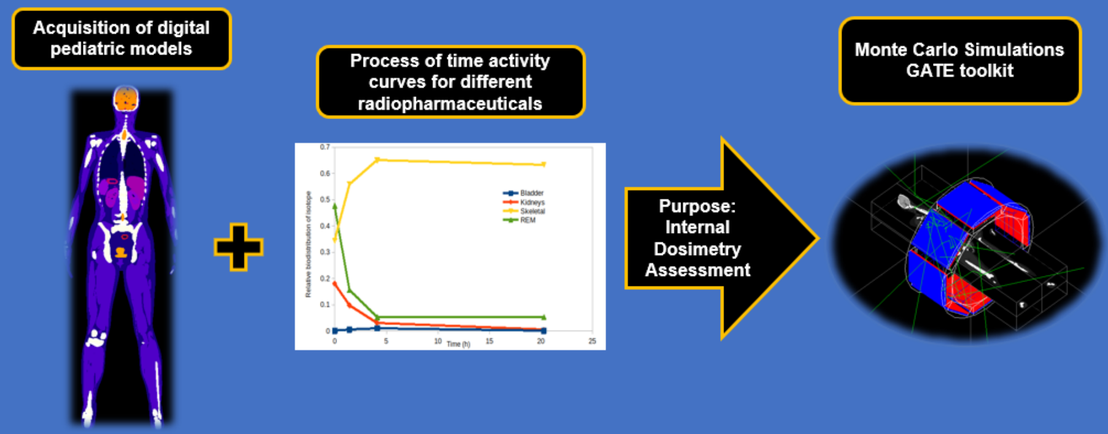


PediDose:
A pediatric simulated dosimetry platform for clinical use

Problem

- Nuclear Medicine procedures involve radioactivity.
- Ionizing radiation can lead to cancer.
- Pediatric patients are more radiosensitive than adults.
- No experimental ways to measure absorbed dose in each organ (internal dosimetry).
- Currently, dosimetry protocols are rough estimations, based on specific anatomical models.





Type of organs	Activity of voxels (Bq)	Energy deposition (MeV)	S factor (Gy/Mbq/sec)
Brain	2.59E+01	3.00E+05	7.32E-11
Spinal Cord	2.59E+01	4.70E+04	1.72E-10
Bladder	0.00E+00	2.52E+04	1.08E-10
Urethra	2.59E+01	1.01E+03	7.90E-11
Heart	2.59E+01	1.44E+05	1.05E-10
Blood	2.59E+01	1.43E+05	1.03E-10
Kidneys	1.45E+03	1.27E+06	8.09E-10
Liver	2.59E+01	1.09E+06	1.62E-10
Gall Bladder	2.59E+01	2.18E+04	2.04E-10
Lungs	2.59E+01	7.94E+03	9.88E-11

Goal

Develop a platform for personalized pediatric dosimetry in NM applications

- ✓ Use of well validated Monte Carlo simulations (gold standard for internal dosimetry).
- ✓ Use of advanced computational models, incorporating a pediatric population.
- ✓ Use of HPC resources for speed-up simulations.
- ✓ Exploit AI techniques for accurate prediction of internal personalized dosimetry.

Contact

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PediDose website: FF4-experiment PEDIDOSE