## *Pediatric Bone-Age Estimator ("PBAE")*

What's new: PBAE identifies the age of a child based on a single left wrist, hand, and fingers X-ray. The framework relies on the estimation of the individuals' skeletal system maturity, which is performed unsupervisely.

Key insights: Assessing a child's bone age is a challenging process requiring expertise and thoughtful analysis. Topazium's system estimates skeletal maturity with similar accuracy as to that reported among raters across diverse clinical practices.

How it works: A subejct's left wrist, hand, and fingers X-ray image is uploaded into Topazium's platform where it is analyzed by a pre-calibrated deep convolutional neural network, instantly inferring the candidate's estimated age.
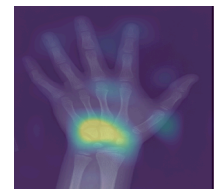
Predicted age: 5.2 years
Real age: 5 years

Results: PBAE reported skeletal maturities with similar error metrics to those observed among professional raters within clinical practices. Initial tests show that Topazium's system can estimate skeletal maturity with mean absolute errors of around 3 months.

Why it matters: Pediatric bone age studies can help evaluate the pace of a child's skeleton maturation. This can help doctors to early detect conditions related to growth and development. The algorithm unsupervisely delivers a precise, standardized and instantaneous inference. PBAE unsupervised framework can be used to monitor progress and guide treatment of children with conditions affecting their growth.