Shihabudheen KV, G N Pillai,  ”Evolutionary fuzzy extreme learning machine for inverse kinematic modeling of robotic arms”, 2015

**Seed Idea:**

* Incorporating the concept of fuzzy logic into neural networks,
* Training algorithm of extreme learning machine, evolutionary extreme learning machine and evolutionary fuzzy extreme learning machine.
* EF-ELM to predict the inverse kinematic solution of the robotic arm.

 Han-Ul Kim; ”Chang-Su Kim, Locator-Checker-Scaler Object Tracking Using Spatially Ordered and Weighted Patch Descriptor”, 2017

**Seed Idea:**

* Spatially ordered and weighted patch (SOWP), to represent the appearance of an object faithfully and suppress background information in a bounding box systematically.
* LCS tracker, which incorporate the locator,the checker, and the scaler to achieve robust tracking

Adna Sento, Pannawit Srisuk, Yuttana Kitjaidure, “An Intelligent System Architecture for Meal Assistant Robotic Arm”, 2017

**Seed Idea :**

* Feature extraction algorithm using the Microsoft Kinect sensor to create the target position in 3-dimensional Cartesian coordinate.
* Inverse kinematic algorithm to convert the Cartesian coordinate into the joint angles.
* Controller algorithm. The proposed controller uses a new weight updating rule model of the neural network using multi-loop calculation based on the fusion of the gradient algorithm with the cubature Kalman filter (CKF) which can optimize the internal predicted state of the updated weights to improve the proposed controller performances.
* The 4-joint robotic arm. To evaluate the performances, the Matlab program is used to implement the overall system.

Baochang Zhang, Zhigang Li, Alessandro Perina, Alessio Del Bue, Vittorio Murino, Jianzhuang Liu, “Adaptive Local Movement Modeling (ALMM) for Robust Object Tracking”, 2015

**Seed idea :**

* Part-based trackers for single object by dividing the image into local patches to track the moving object seamlessly.
* With the help of Spatio-Temporal Context, considering the output of base tracking algorithm, a Gaussian Mixture Model (GMM) is first used to model the distribution of the movement of local patches relative to the gravity center of the tracked object.
* Then, the GMM is combined with the chosen base tracker in a boosting framework, which gives an efficient integrated scheme for the tracking task.

Yingbai Hu, Zhijun Li, Guanglin Li, Peijiang Yuan, Chenguang Yang, Rong Song, “Development of Sensory-Motor Fusion-Based Manipulation and Grasping Control for a Robotic Hand-Eye System”, 2016

**Seed idea :**

* sensory-motor fusion-based manipulation and grasping control strategy has been developed for a robotic hand-eye system.
* The features discussed includes vision servoing, surface electromyography (sEMG)-based movement recognition and hybrid force and motion optimization for manipulation and grasping.
* A bionic arm with dextrous hand, high-speed active vision, and an EMG sensors are used for actual experiments.
* Manipulative tasks such as object detection, recognition, grasping are performed.