



**European Centre
for Soft Computing**

COST Action IC0702

Work Group B



- **Bio-inspired meta-heuristics can be seen as iterative estimation procedures (Evolutionary algorithms: mode of the fitness function).**
- **Convergence corresponds to estimator consistency.**
- **Other statistical properties can also be transferred (unbiasedness, efficiency, sufficiency etc.)**
- **Some seminal work exists, but is limited:**
 - **small populations,**
 - **special fitness functions,**
 - **very restricted genetic operations etc.**



Estimation of Distribution Algorithms

- **EDAs are a newer type of evolutionary algorithms:**
 - **Current population is used to estimate a distribution describing where good solutions may be located.**
 - **Next generation is obtained by random sampling.**
- **Clear connection to statistics due to the use of estimation and sampling procedures.**
- **(Deeper) investigation of statistical properties needed:**
 - **expected number of populations**
 - **expected solution quality**