Real Time Identifiction in Crowds

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28 March 2022

Predator[1]

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Why the TLD approach?

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- Generic

TLD Approach[2]

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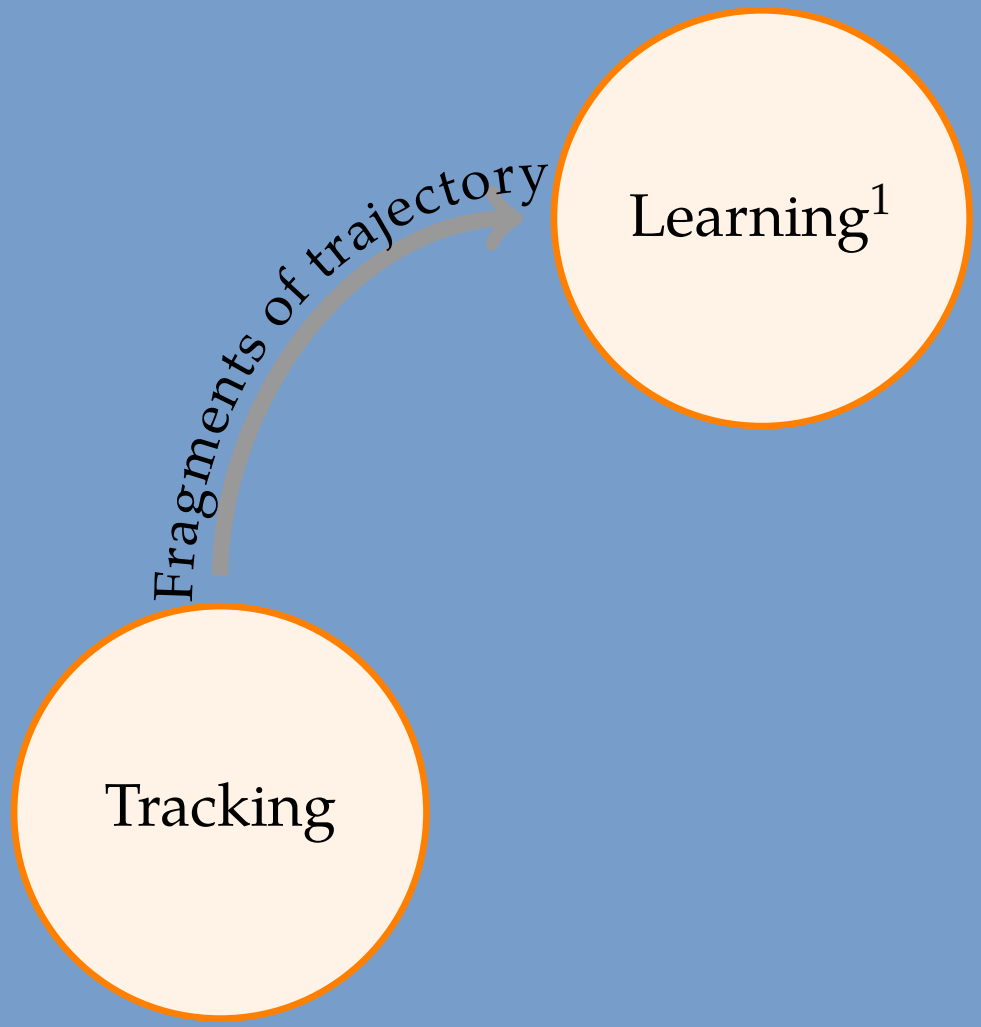
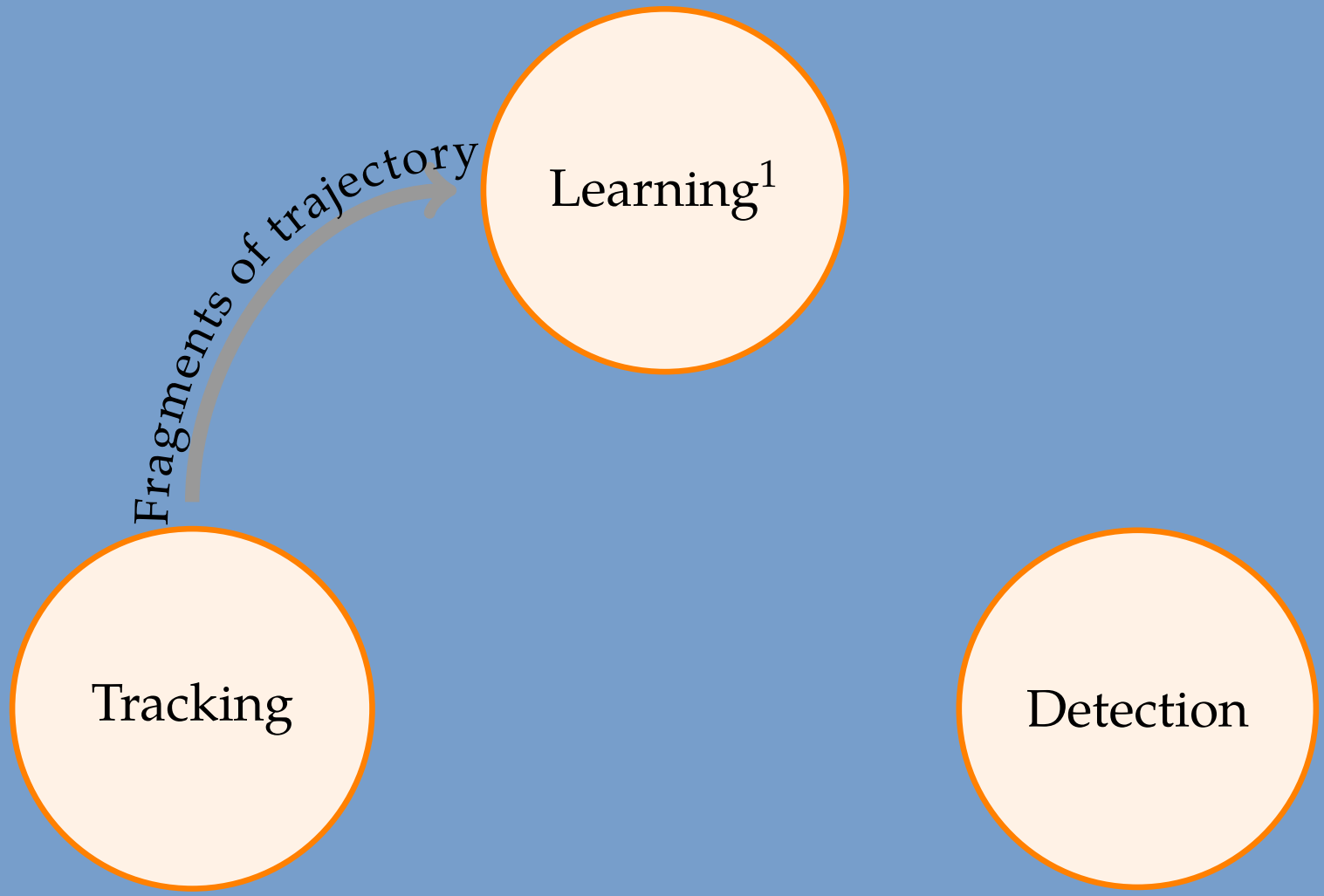
P-N Learning.

TLD Approach[2]



P-N Learning.

TLD Approach[2]



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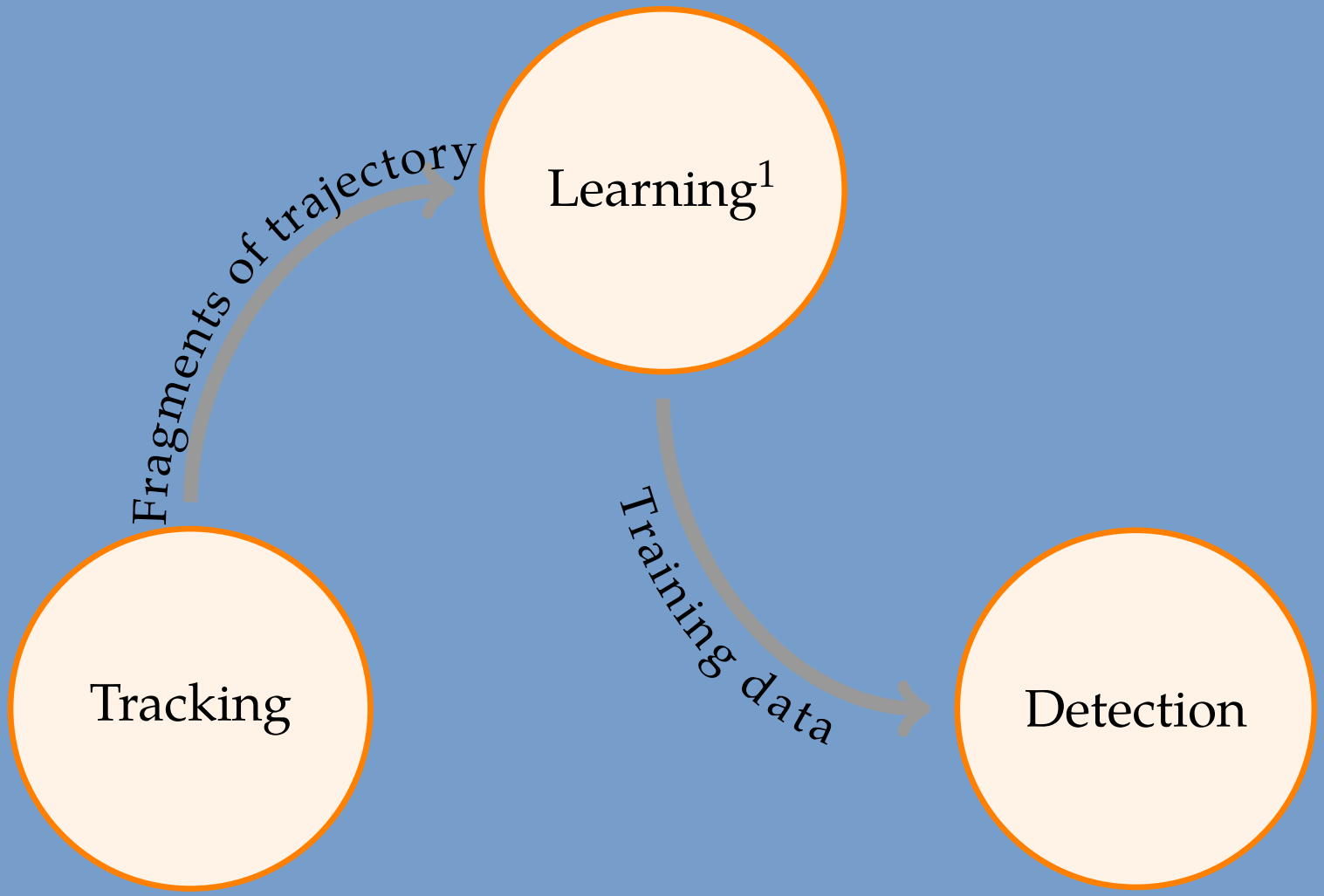

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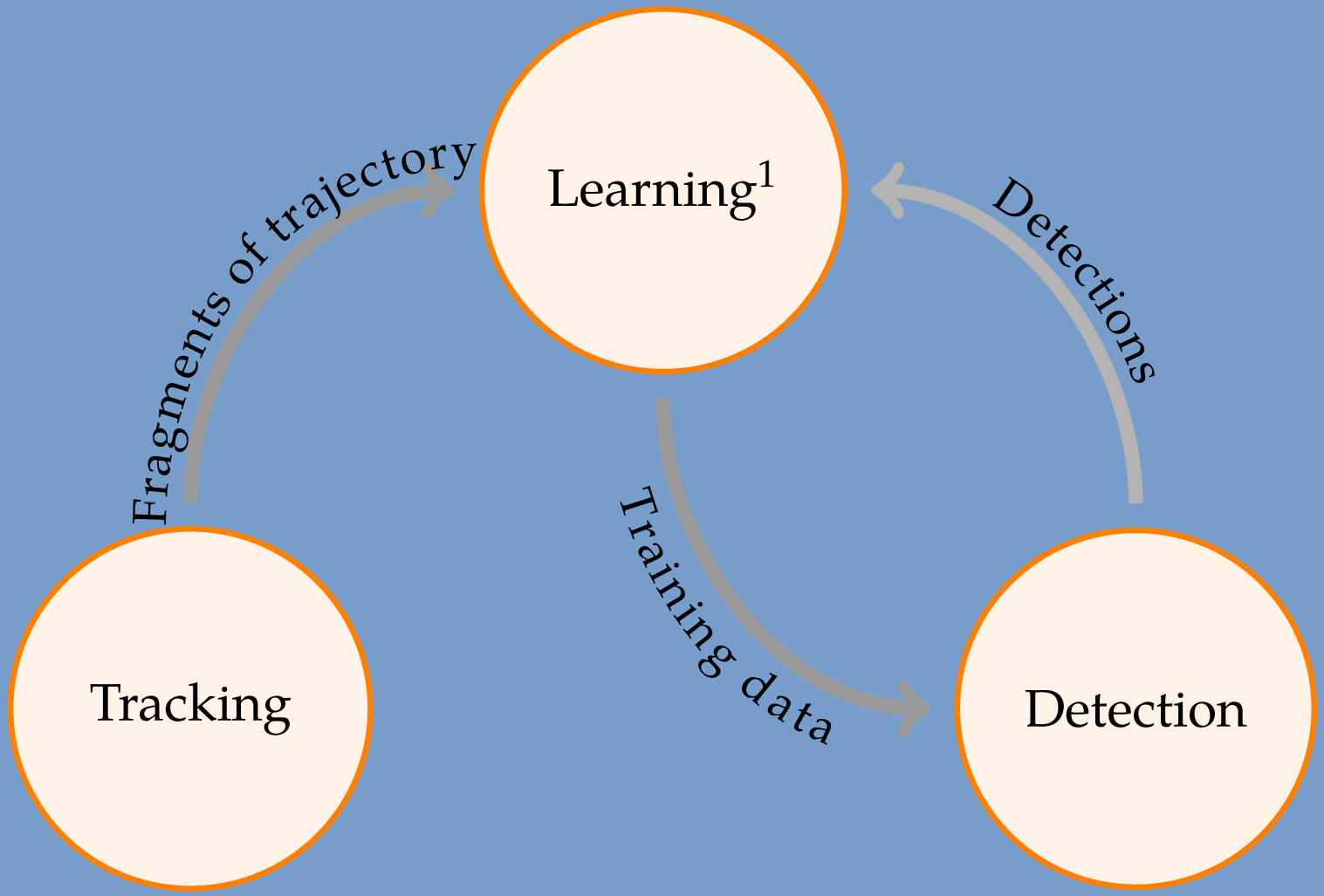

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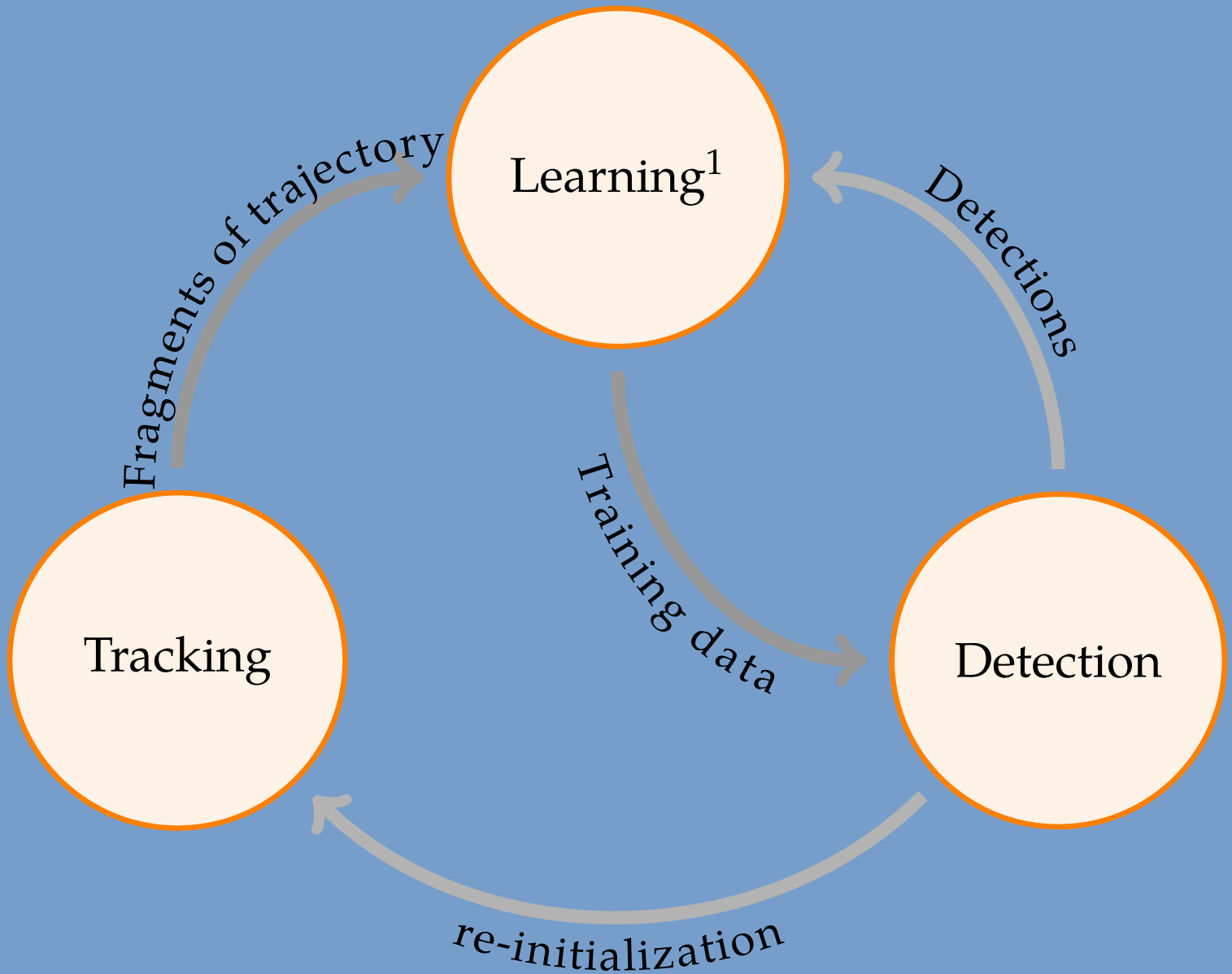

P-N Learning.

Improvements to Predator

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Algorithm	feature	Mean precision	Mean FPS
KCF	HOG [2]	73.2%	172
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TLD		60.8%	28

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[2] Histogram of Oriented Gradients

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- Better Learning Models?
- Better Detection Models?

[2] Histogram of Oriented Gradients

Goal

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- Create a system

Goal

- Create a system that takes a live video feed

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- Create a system that takes a live video feed of a crowd of people

Goal

- Create a system that takes a live video feed of a crowd of people and identifies and tracks people in the video.

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- Problems?

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- Problems?
  - E

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- Problems?
  - ET

Goal

- Create a system that takes a live video feed of a crowd of people and identifies and tracks people in the video.

- Problems?
  - ETHICS!

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- Problems?
  - ETHICS!
  - Time.
- Solutions?
  - Public Data. For now...
  - Work harder.

Further applications

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Class Register?

Assitive technologies?

Further applications

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Further applications

Deliverables

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- Full Implementation of Predator
  - 3rd week of 2nd term

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  - 2nd week of 2nd Semester
- Extension to Multiple Object Tracking
  - Beginning of 4th Term

References

[1] Z. Kalal, "Predator - tracker that learns and improves," Youtube. (2011), [Online]. Available: `https://www.youtube.com/watch?v=1GhNXHCQGsM`.

[2] Z. Kalal, K. Mikolajczyk, and J. Matas, "Tracking-learning-detection," *IEEE transactions on pattern analysis and machine intelligence*, vol. 34, pp. 1409–1422, 7 2011.

[3] J. F. Henriques, R. Caseiro, P. Martins, and J. Batista, "High-speed tracking with kernelized correlation filters," *IEEE transactions on pattern analysis and machine intelligence*, vol. 37, pp. 583–596, 3 2014.