03-F-01

Triangulation

Triangulating Monotone Polygons

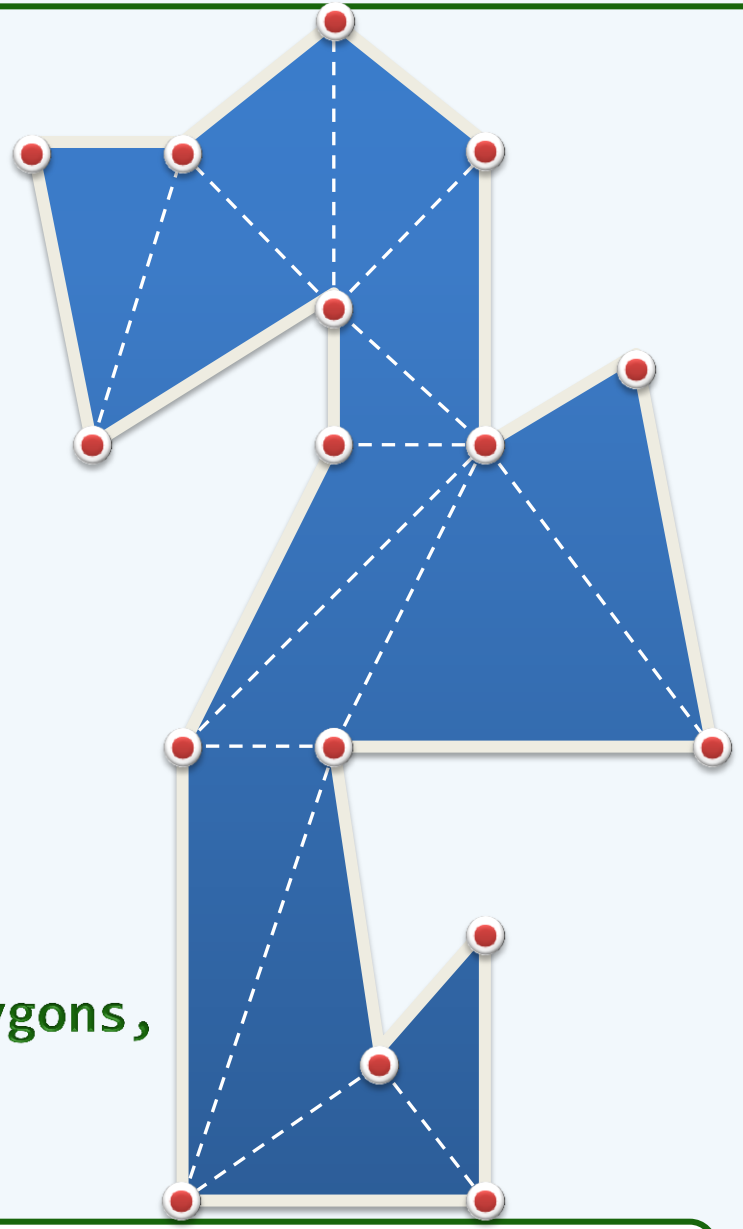
- Monotone Polygon

Junhui DENG

deng@tsinghua.edu.cn

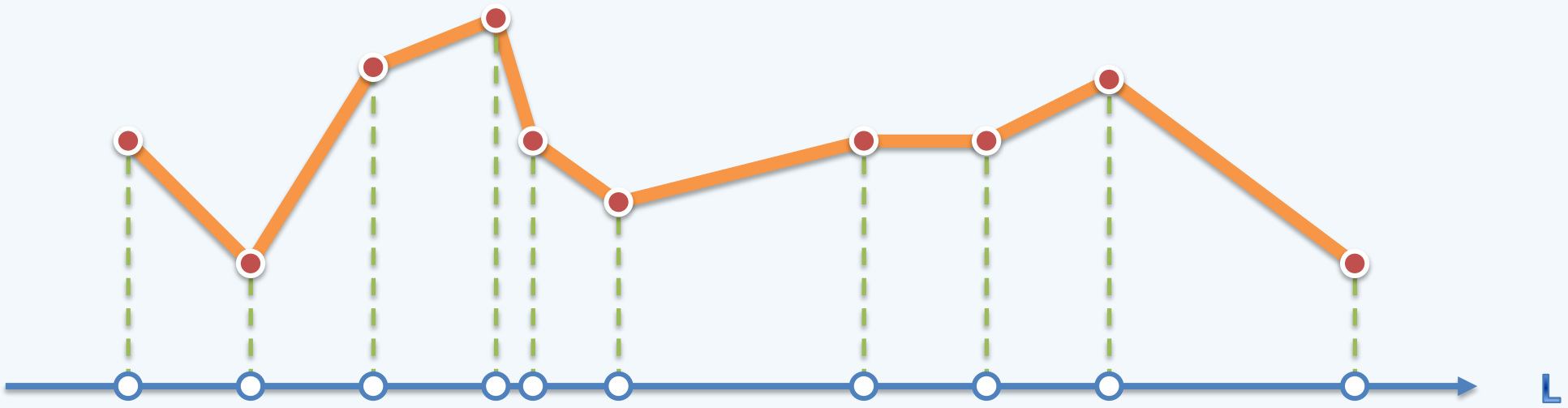
Simple Polygon

- Triangulating simple polygons
  may be the most fundamental technique
  in many applications
- Here we consider only
  simple polygons **without holes**
- Before introducing algorithms for
  triangulating a general simple polygon,
  let's first consider how to
  triangulate a special class of polygons,
  namely, the **monotone polygons**



Monotone Chain

- Let M = { p_1, …, p_k } be a polygonal chain, and L a line
- If the projections of { p_1, …, p_k } onto L are ordered the **same** as in M, then M is called to be **monotone** w.r.t. L



- M is called **monotone** if it is monotone w.r.t. at least **one** line

Monotone Polygon

- A polygon is called **monotone** if

  it consists of 2 chains w.r.t. a **same** line

- Here we use the convention that

  the direction for monotonicity is the **y**-axis

- Hence the 2 monotone chains are referred to as

  the **left** & **right** chains