

Лаб 3: Зургаас мөнгөн дүнг тооцоолох

Бэлтгэсэн

Эрдэнэ Тэмүүжин

Огноо

12.08.23

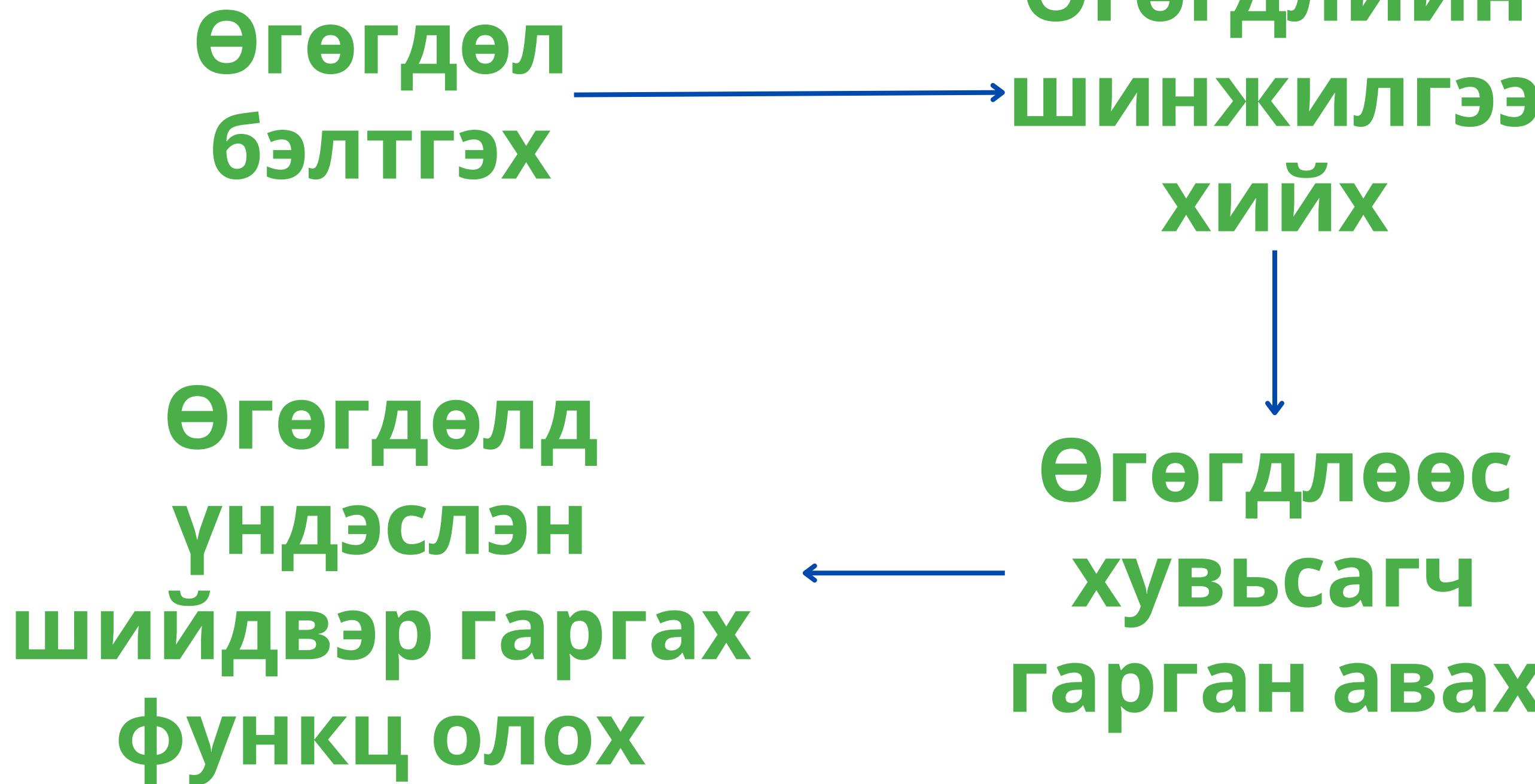
Удиртгал

Ямар нэг улсын мөнгөн тэмдэгтүүдийг агуулсан зургаас дүрс боловсруулалтын аргаар мөнгөн дүнг тооцоолно.

НӨХЦЛҮҮД:

- Машин Сургалт болон Гүн Сургалтын аргууд ашиглахгүй.
- Мөнгөн тэмдэгт танилтыг таатай орчинд хийж болно. Энэ нь орчны гэрэлтүүлэг хэвийн байх, тэмдэгт гэмтсэн биш байх, давхардаагүй байх болон арын дэвсгэр нь таних объектээс ялгарах г.м.

Агуулга



Мөнгөн дэвсгэрт

Энэхүү лабораторийн ажилд би Америкийн Нэгдсэн Улсын зоосон мөнгийг таних гэж оролдох болно. Гэвч бүх дүн бүхий зооснуудыг биш харин зөвхөн Cents, Nickels болон Quarters таних юм.

CENTS



NICKELS



QUARTERS



Ашиглах өгөгдэл



SERGEY SAHAROVSKIY · UPDATED 8 MONTHS AGO

7

New Notebook

Download (340 MB)



U.S. Coins

CoinVision Project: A U.S. Coin Dataset for Numismatic Analysis (Beta Version)



Data Card Code (1) Discussion (0)

About Dataset

This dataset comprises a collection of **29,473** images of U.S. coins, covering 44 out of 77 coin categories.

The dataset is in its **beta version** and currently includes images of Jefferson Nickels (1938-Date), Lincoln Cents (1909-Date), and Washington Quarters (1932-1998). The images are collected (mostly web scrapping) from various sources and can be used for numismatic analysis, coin recognition, and machine learning tasks. The dataset will be updated periodically with more coin images to expand the coverage of different U.S. coin categories. The images are in various resolutions. The dataset can serve as a valuable resource for researchers, coin collectors, and machine learning practitioners interested in U.S. coins.

April 7, 2023:

- dataset.csv contains information about 3,749 coin images belonging to three different categories (folders in the directory coins):

1. Lincoln Cents (1909-Date) - 1285 coins.
2. Washington Quarters (1932-1998) - 1250 coins.
3. Jefferson Nickels (1938-Date) - 1214 coins.

Usability ⓘ

10.00

License

CC0: Public Domain

Expected update frequency

Monthly

Tags

Currencies and Foreign Exchange

Computer Vision

Multiclass Classification

Image Classification

Cents: 1285



Nickels: 1214



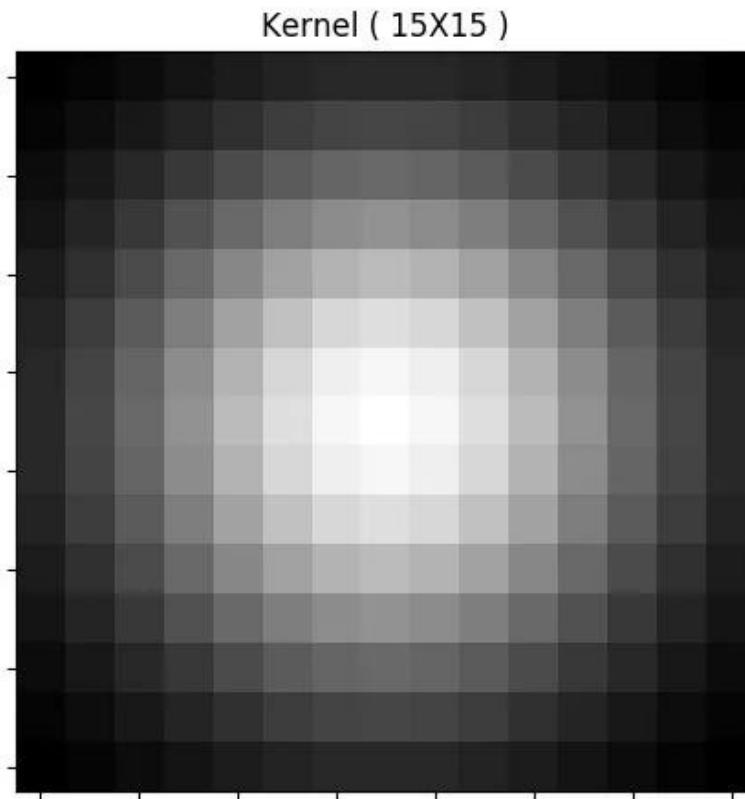
Quarters: 1250



Өгөгдөл Цэвэрлэх

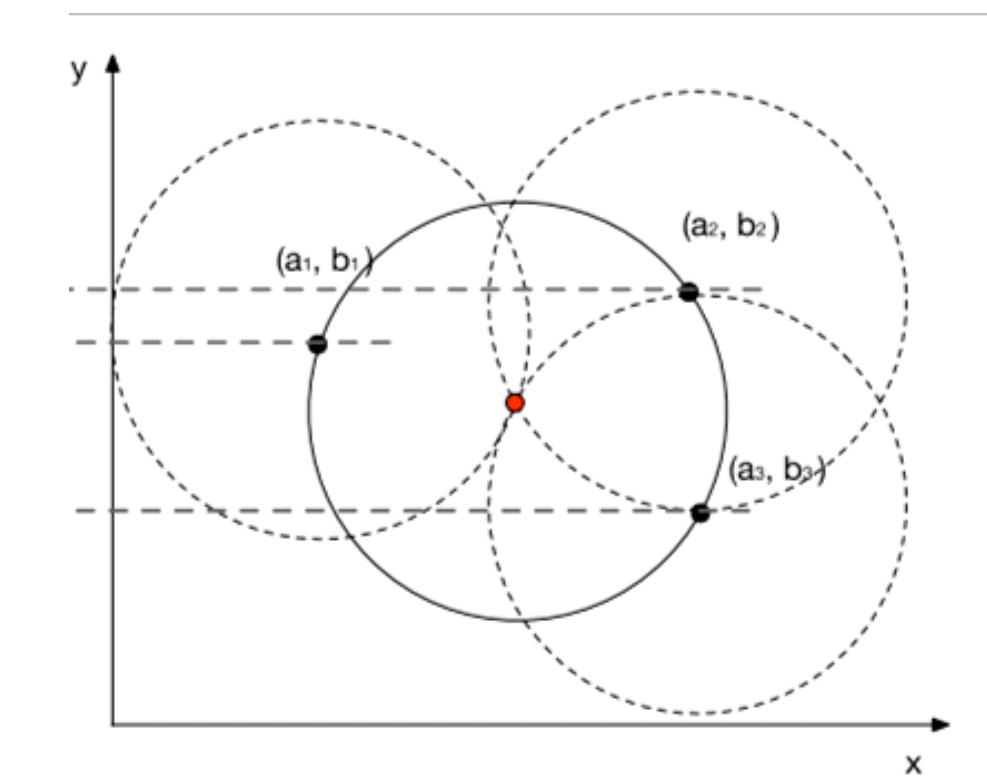
Зургын дэвсгэрээс зооснуудыг салгах

Gaussian blur

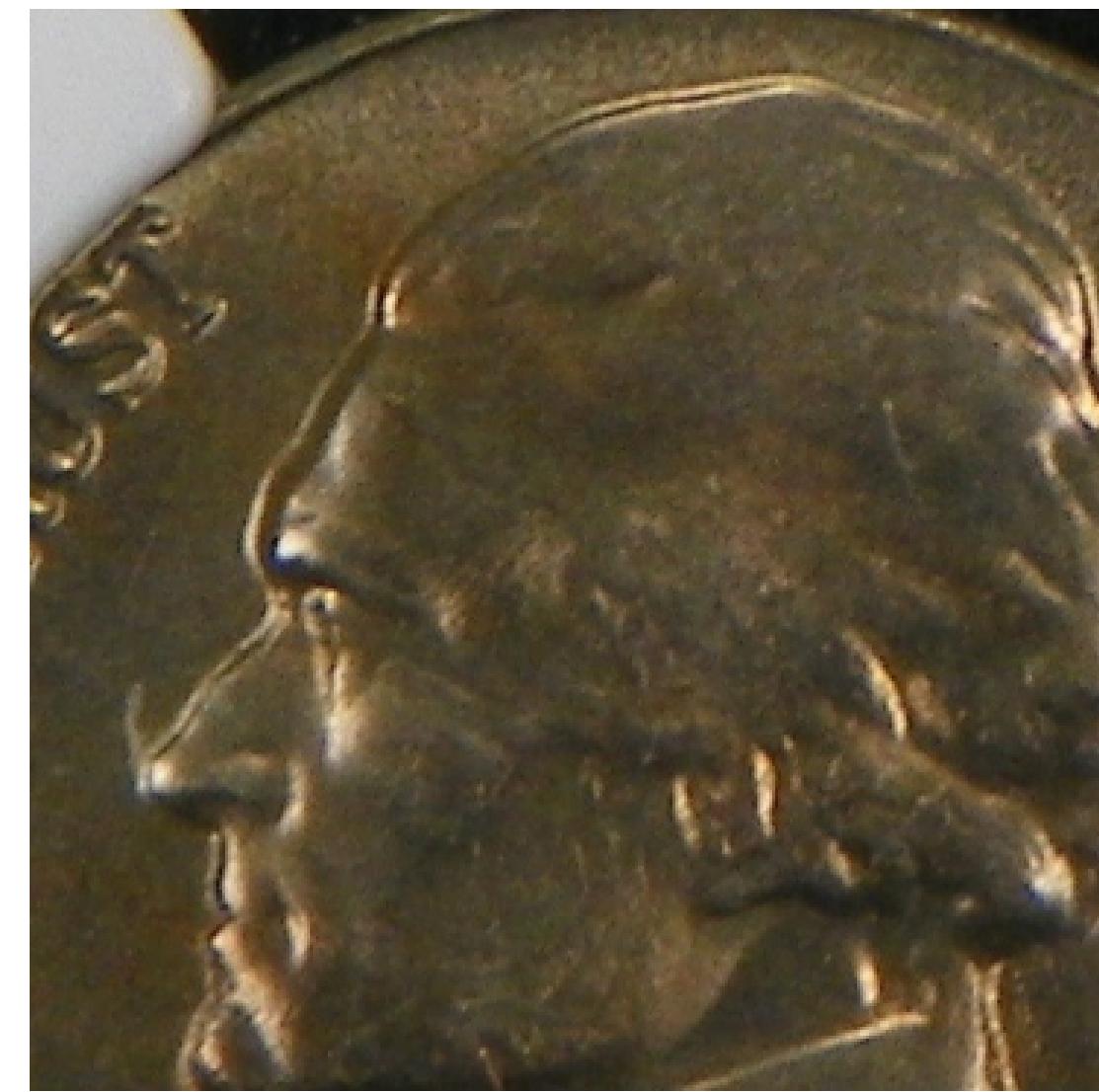
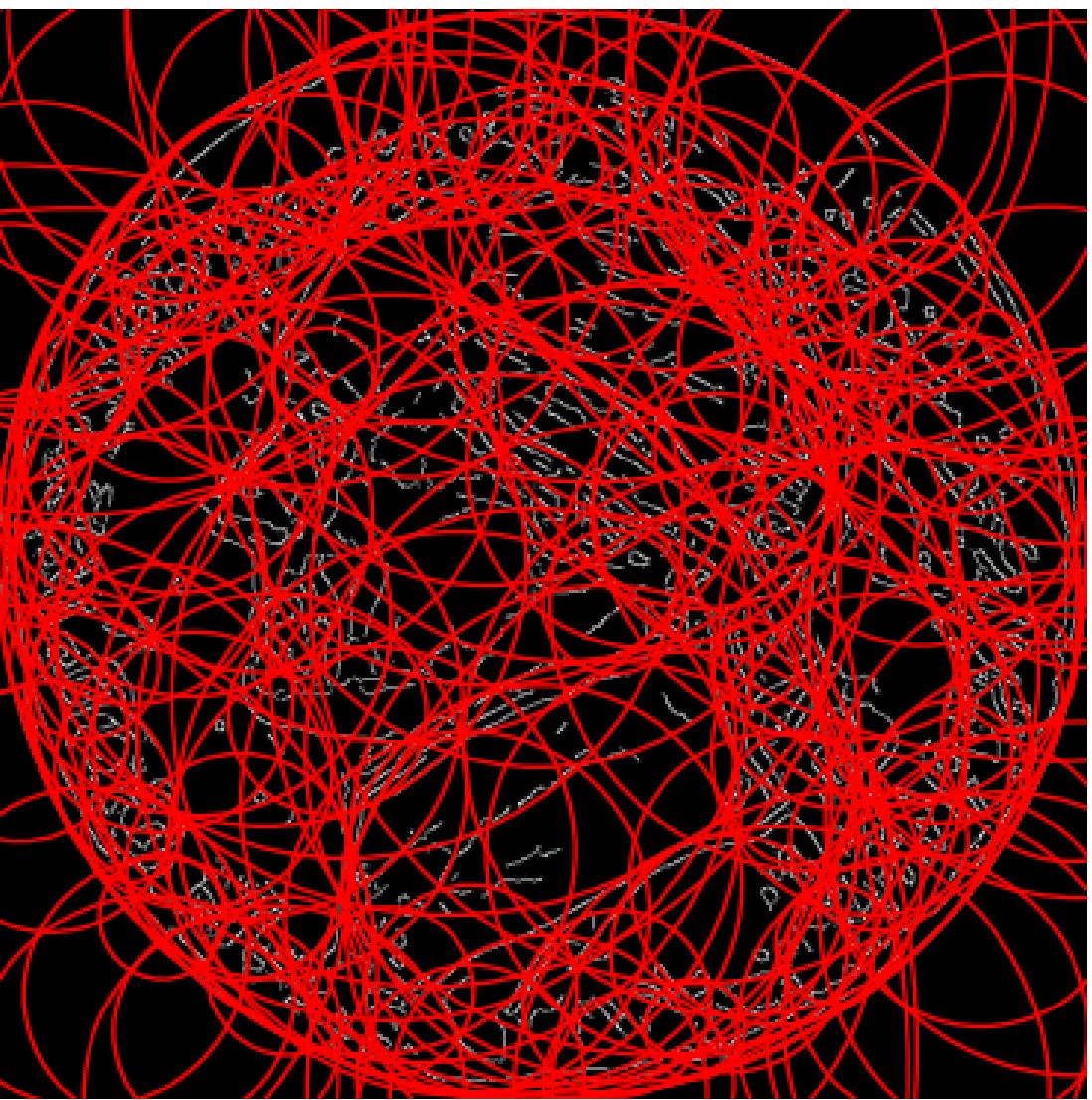


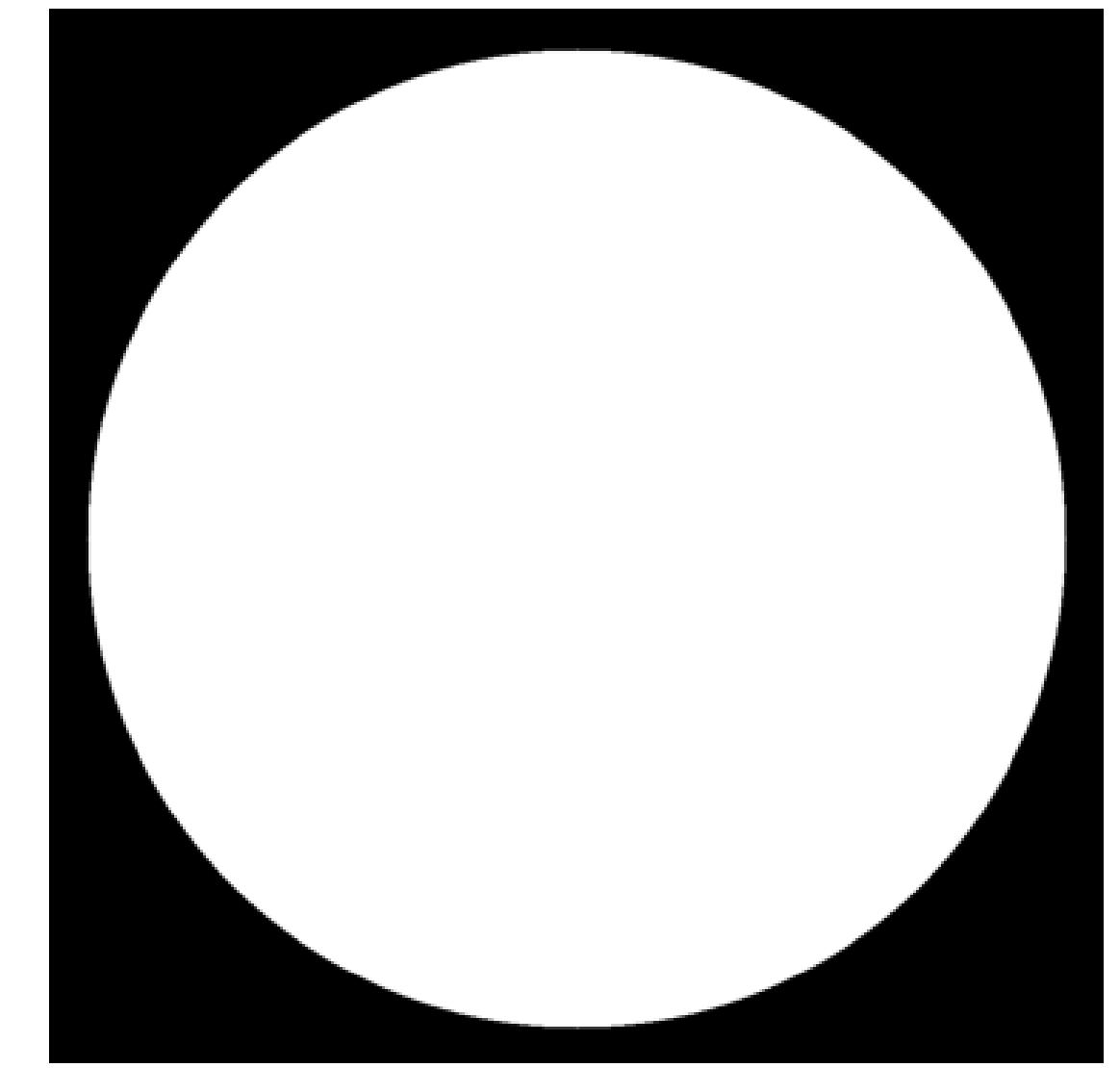
Canny Edge Detection

Hough Circle

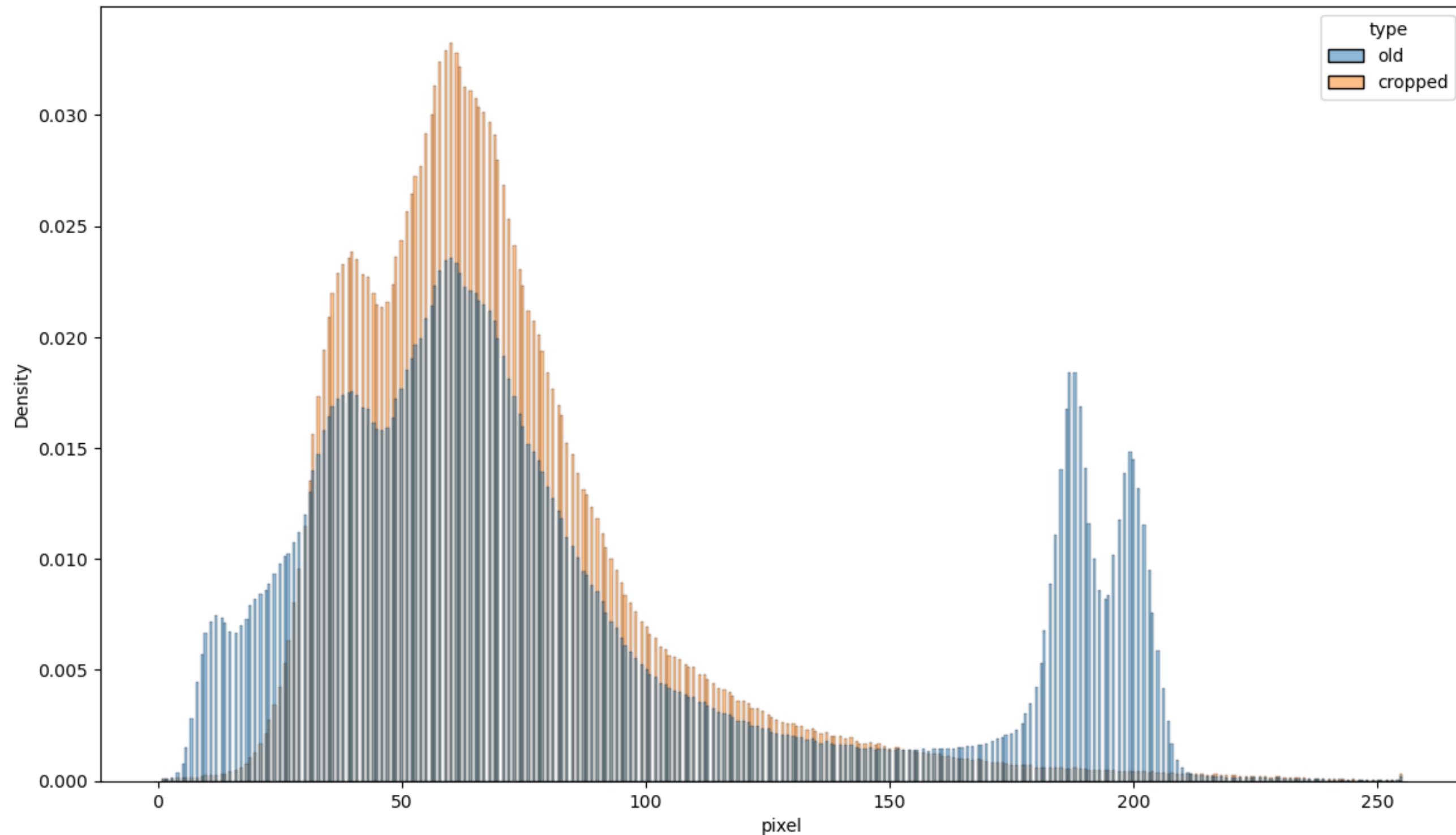










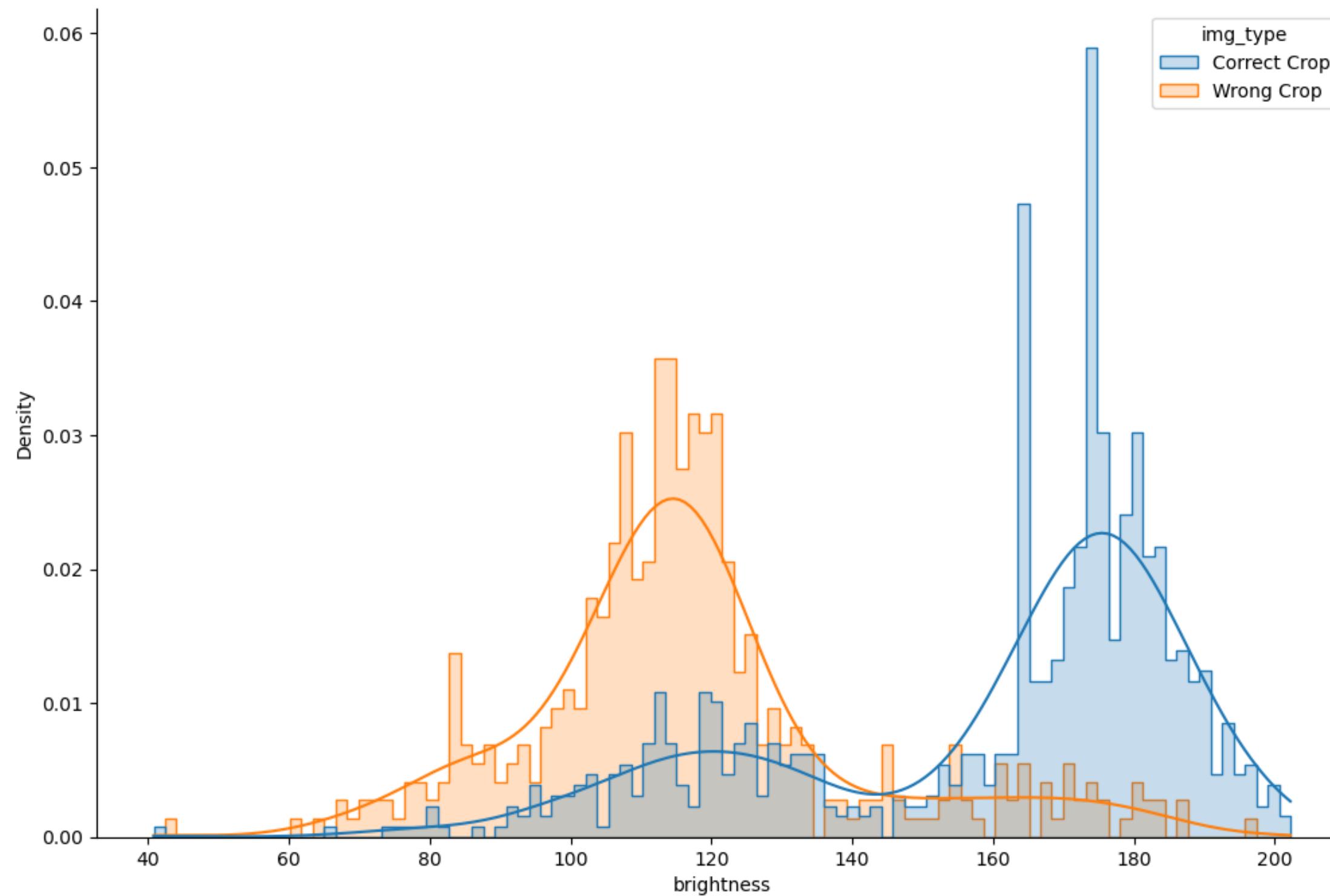


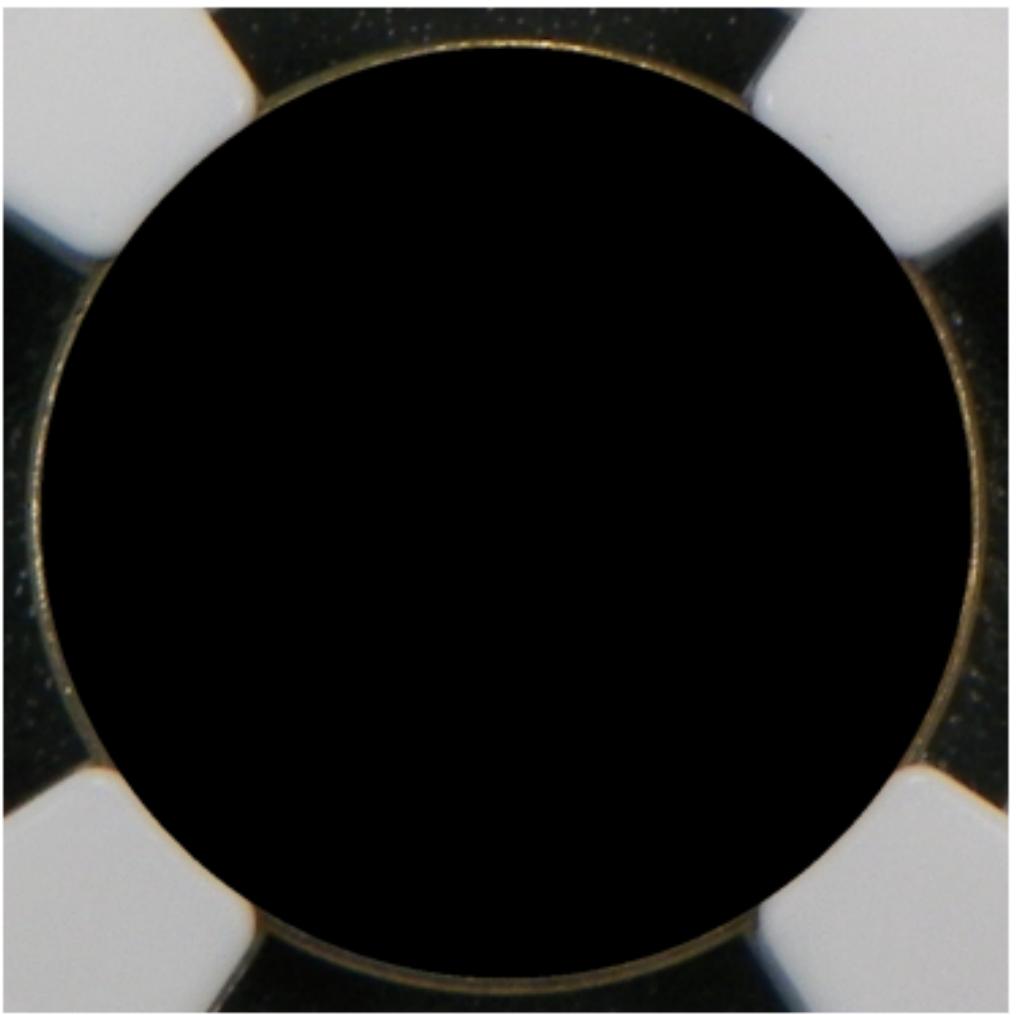
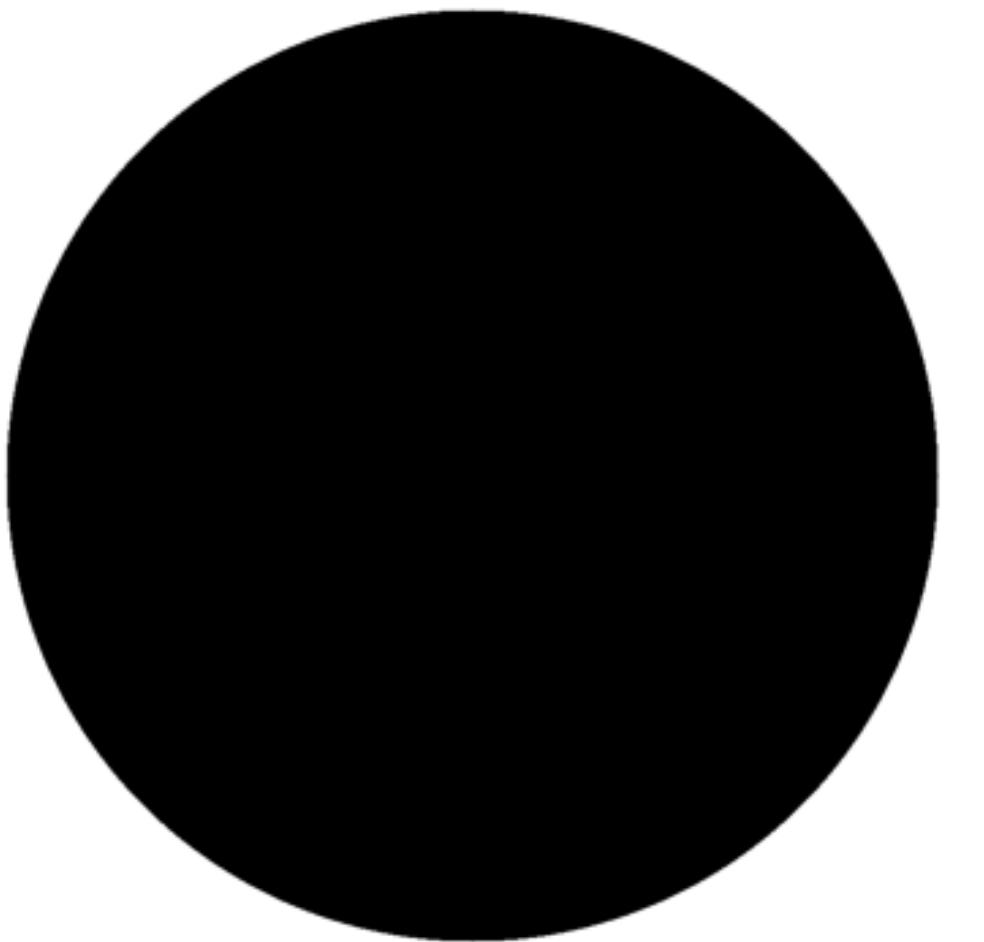
Эгөгдлийн шинжилгээ

Ангилал бүр дэх зооснуудыг бүгдийг нь зөв таслан авч чадаагүй тул алдаатай таслалтууд дээр шинжилгээ хийсэн юм. Хамгийн олон алдаатай таслалт нь **Quarter** байсан ба нийт 451 зураг алдаатай тасалсан.

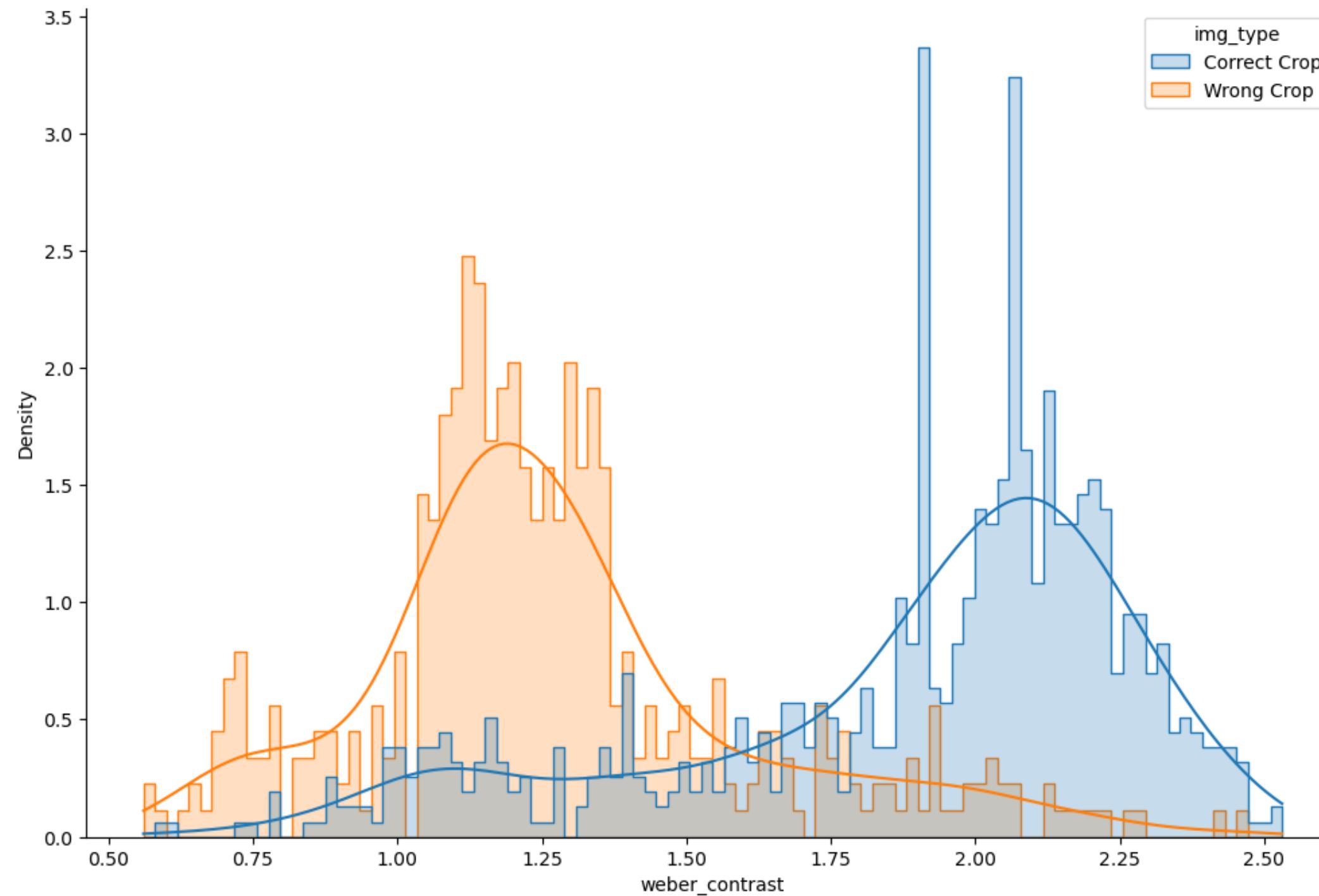


Brightness PDF

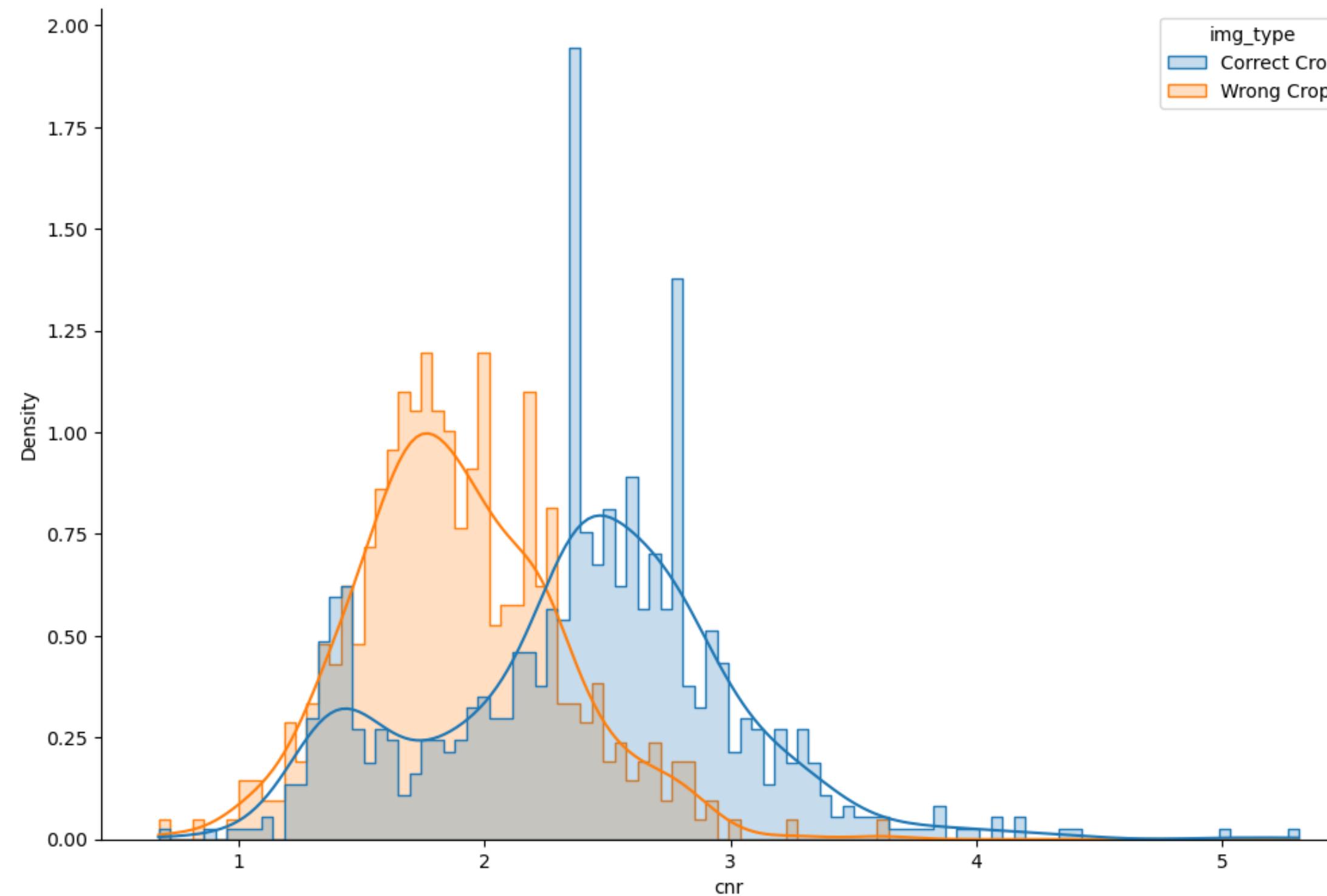




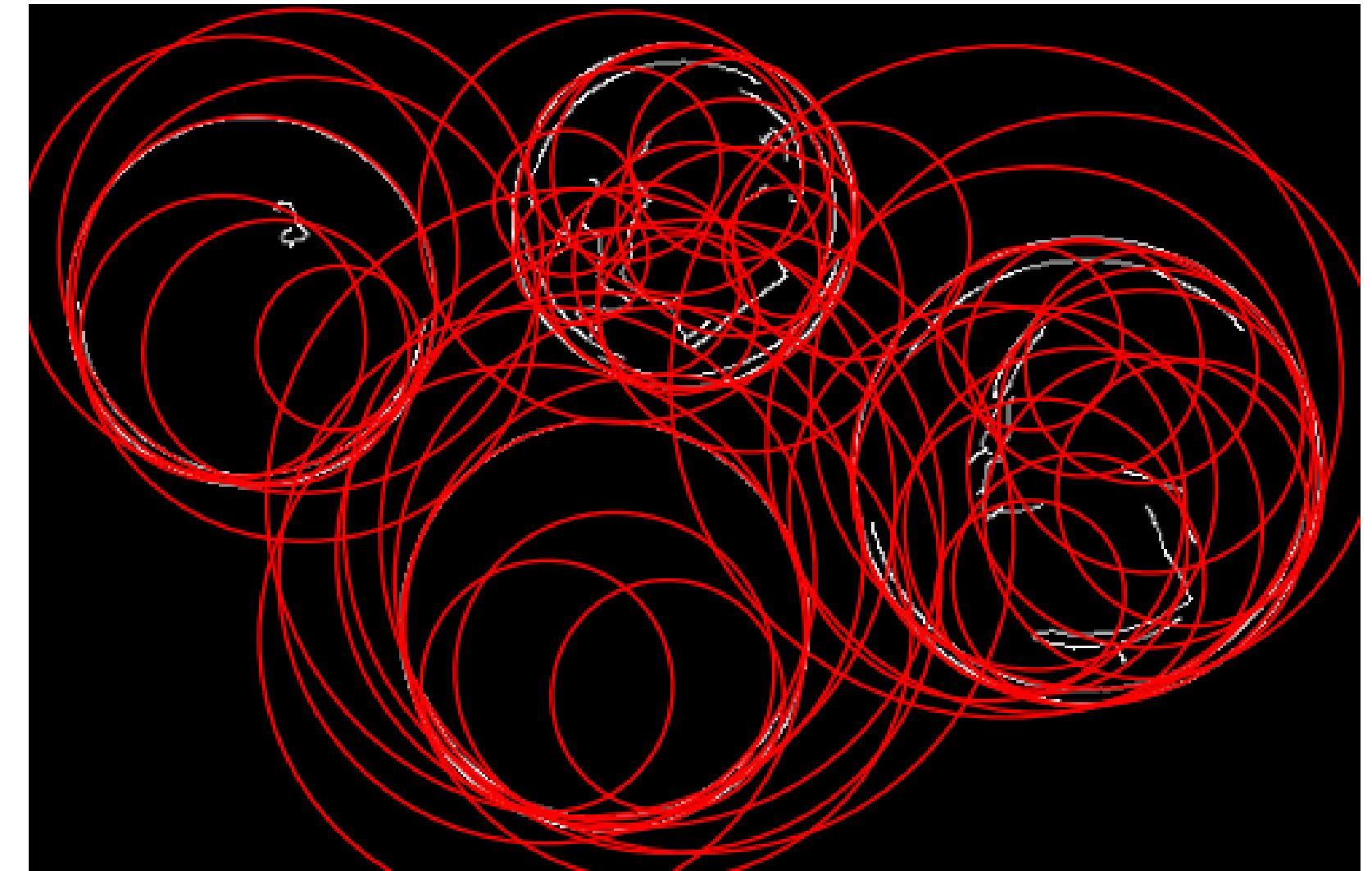
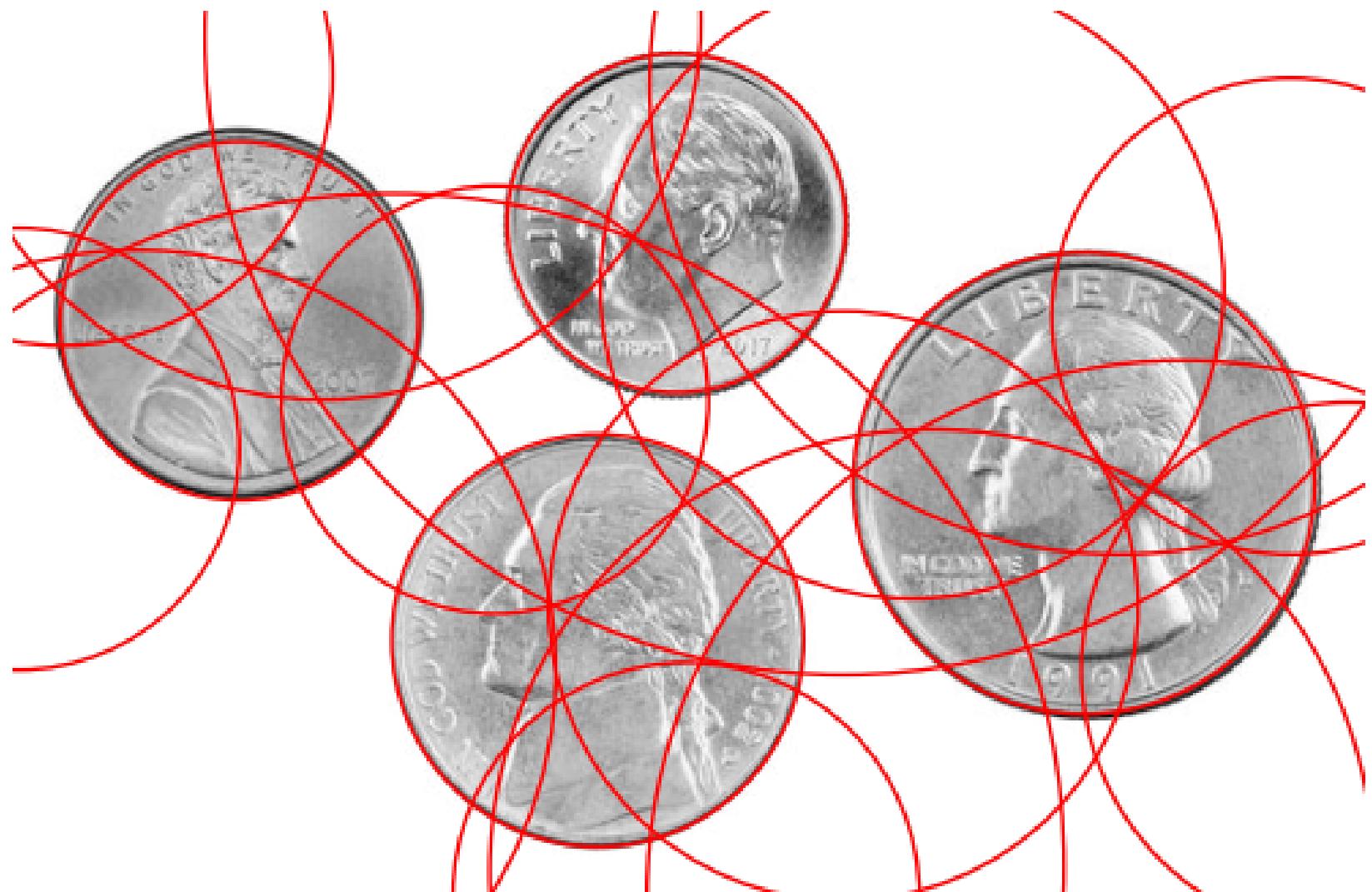
Weber Contrast PDF



Contrast to Noise ratio (CNR) PDF

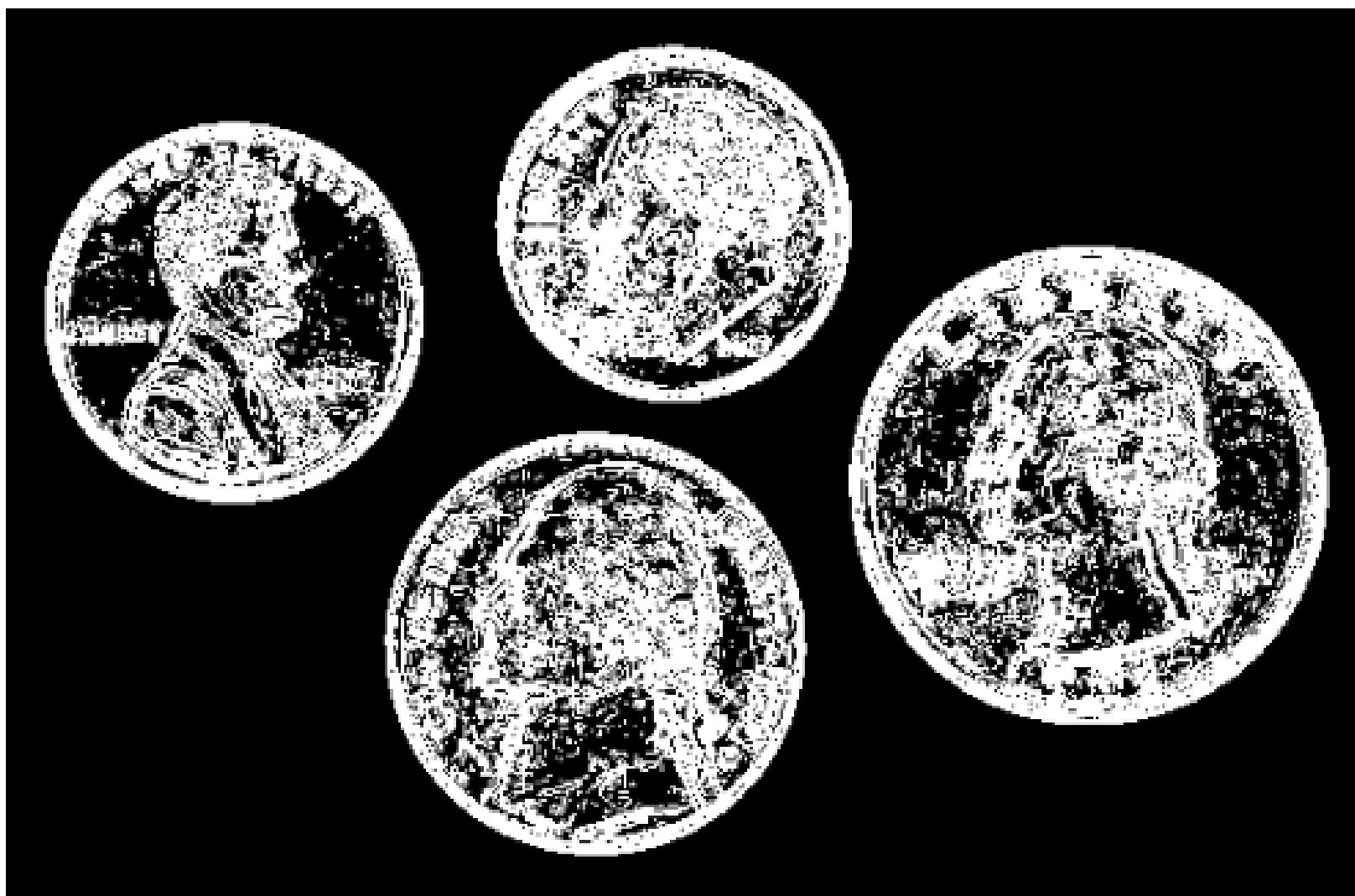
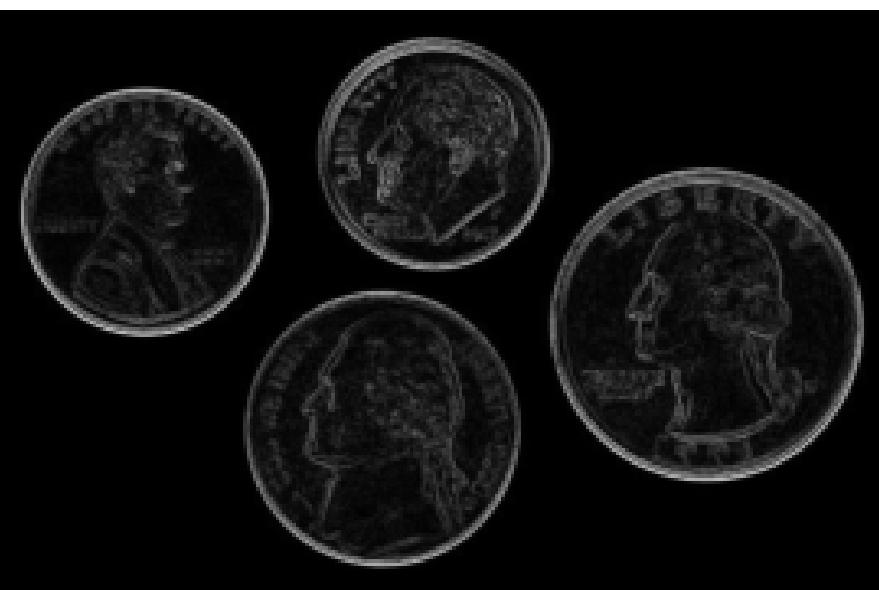


Өгөгдсөн зурагт нэгээс олон зоос байх



Зургийн градиент

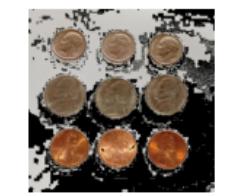
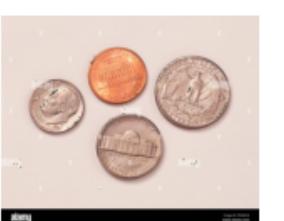




Original



LAB





Original



Original



Original



Original



Original



Original



Original



Original



100



100



Original



Original



Тасдаж авсан: 1



Тасдаж авсан: 2



Тасдаж авсан: 3



Тасдаж авсан: 4





Тасдаж авсан: 1



Тасдаж авсан: 2



Тасдаж авсан: 3



Тасдаж авсан: 4



Тасдаж авсан: 5





Тасдаж авсан: 1



Тасдаж авсан: 2



Тасдаж авсан: 3



Тасдаж авсан: 4



Тасдаж авсан: 5



Тасдаж авсан: 6



Тасдаж авсан: 7



Тасдаж авсан: 8



Тасдаж авсан: 9



Тасдаж авсан: 10



Тасдаж авсан: 11



Тасдаж авсан: 12



Өгөгдлөөс хувьсагч гаргах

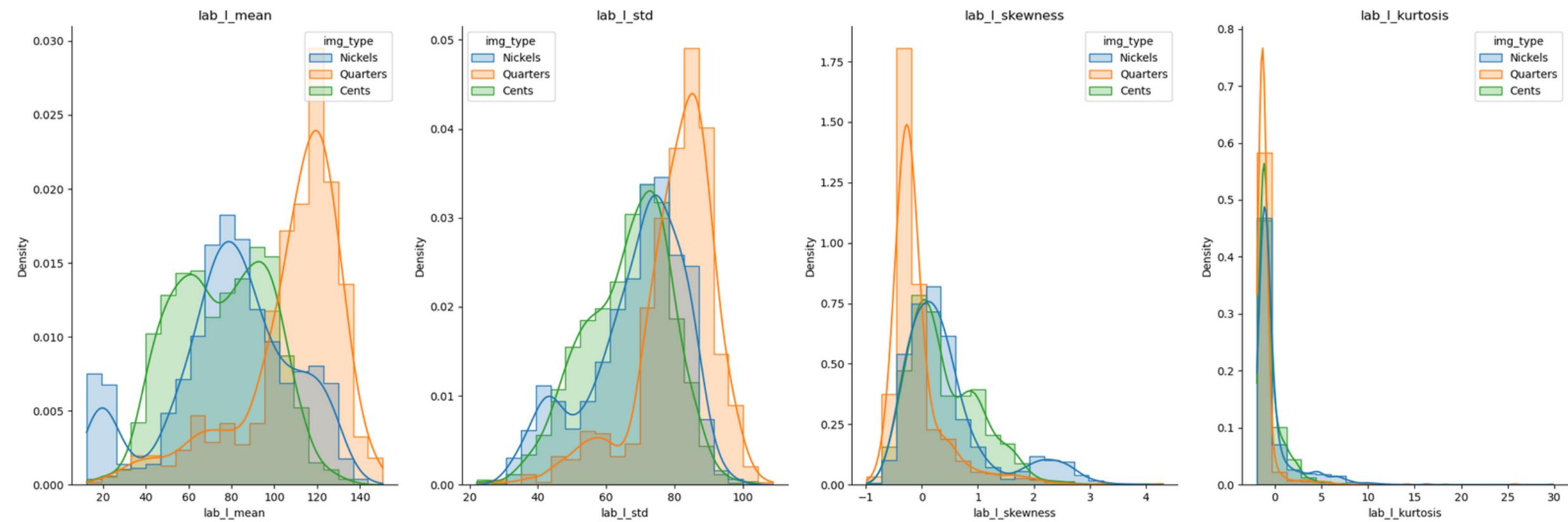
Зураг дээрх зоос нь дараах хүчин зүйлсээс хамаарч гарган авсан хувьсагчид нь хооронд үлэмж ялгаа гарах боломжтой. Үүнд:

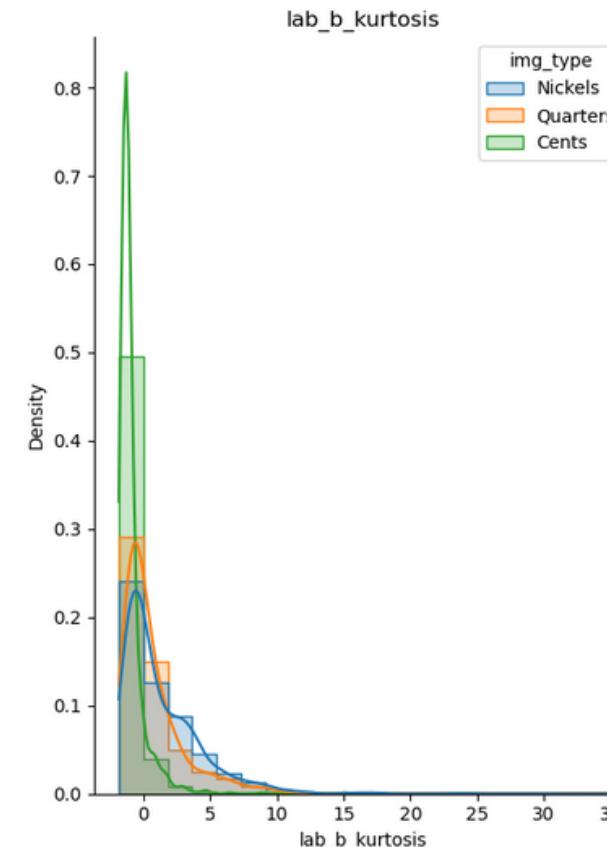
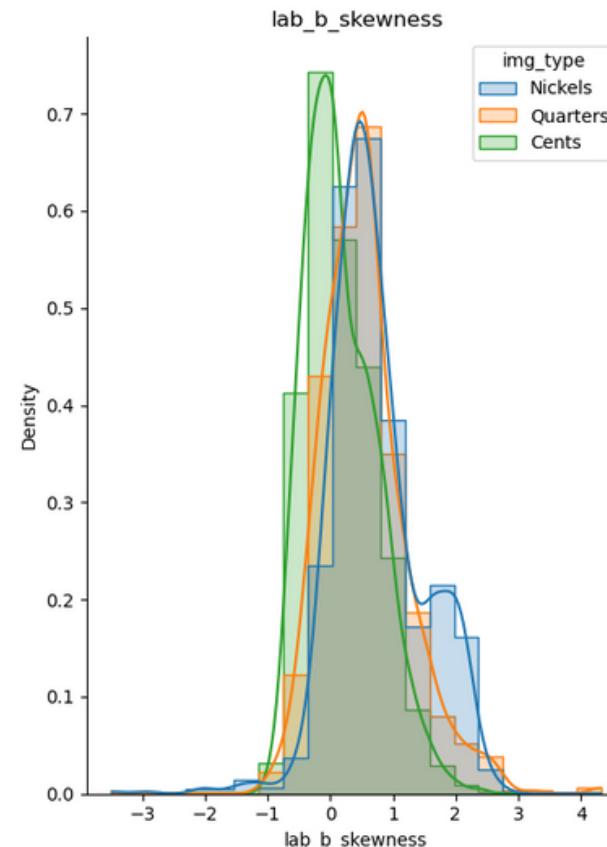
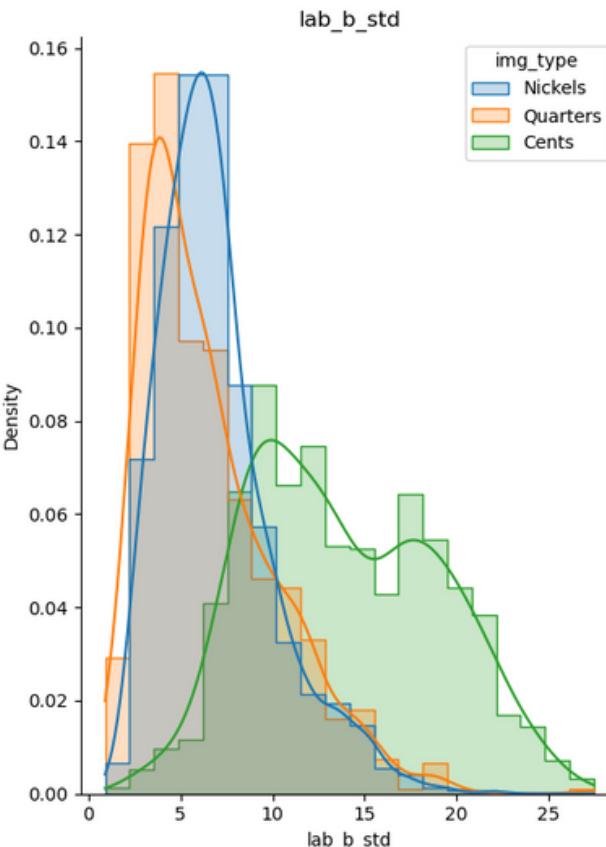
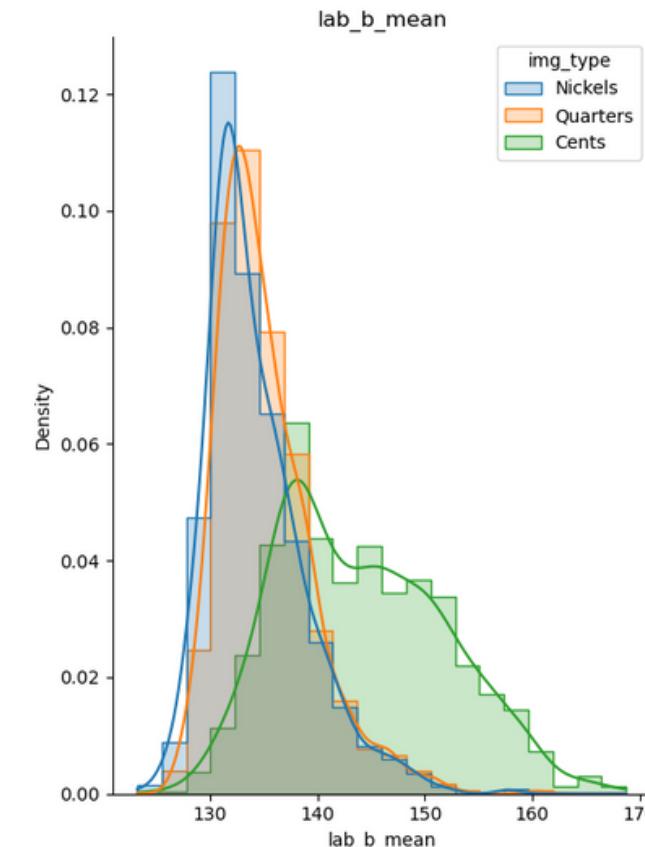
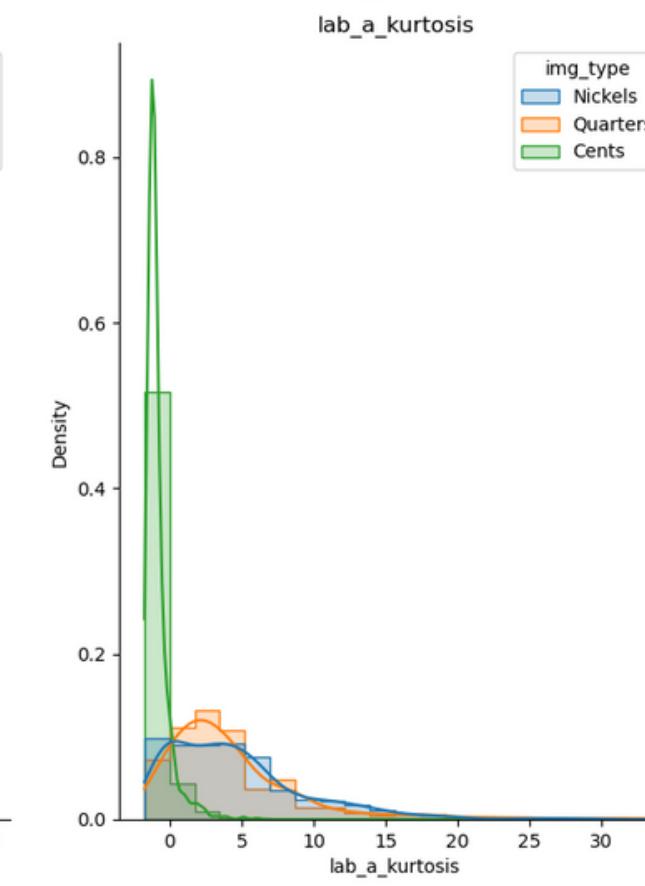
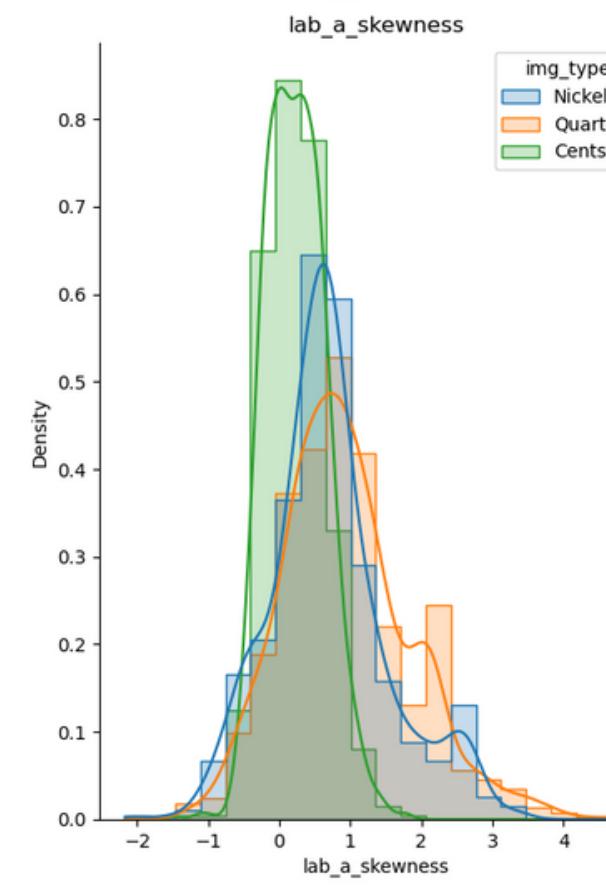
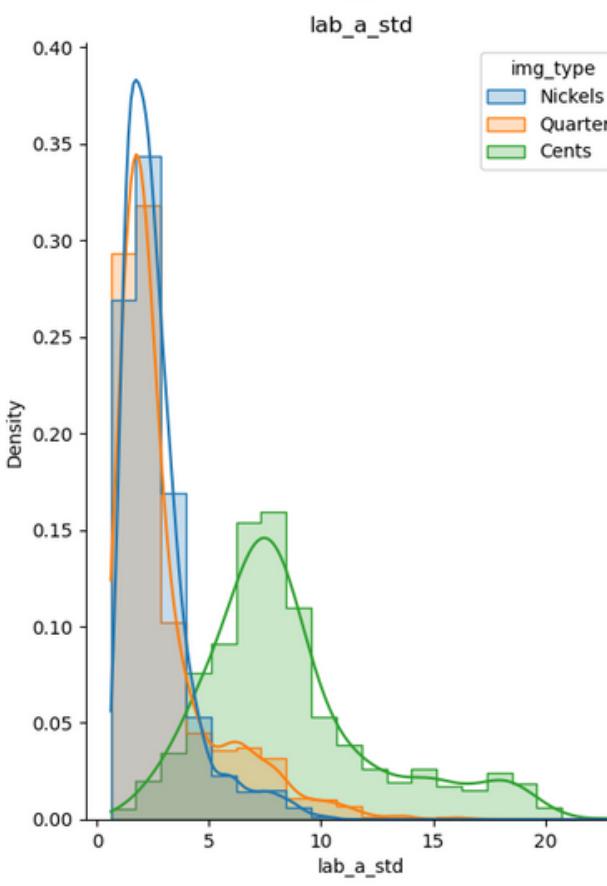
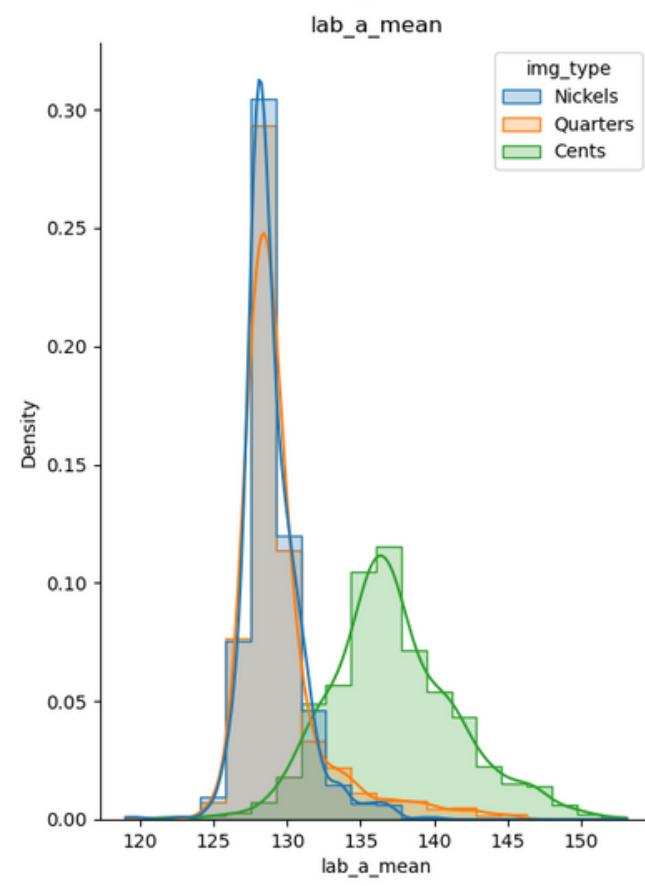
- Scale?
- Rotation?
- Single or Multiple?

Иймд зураг бүрийн хувьд инвариант байх хувьсагчид олохыг зорьсон юм.

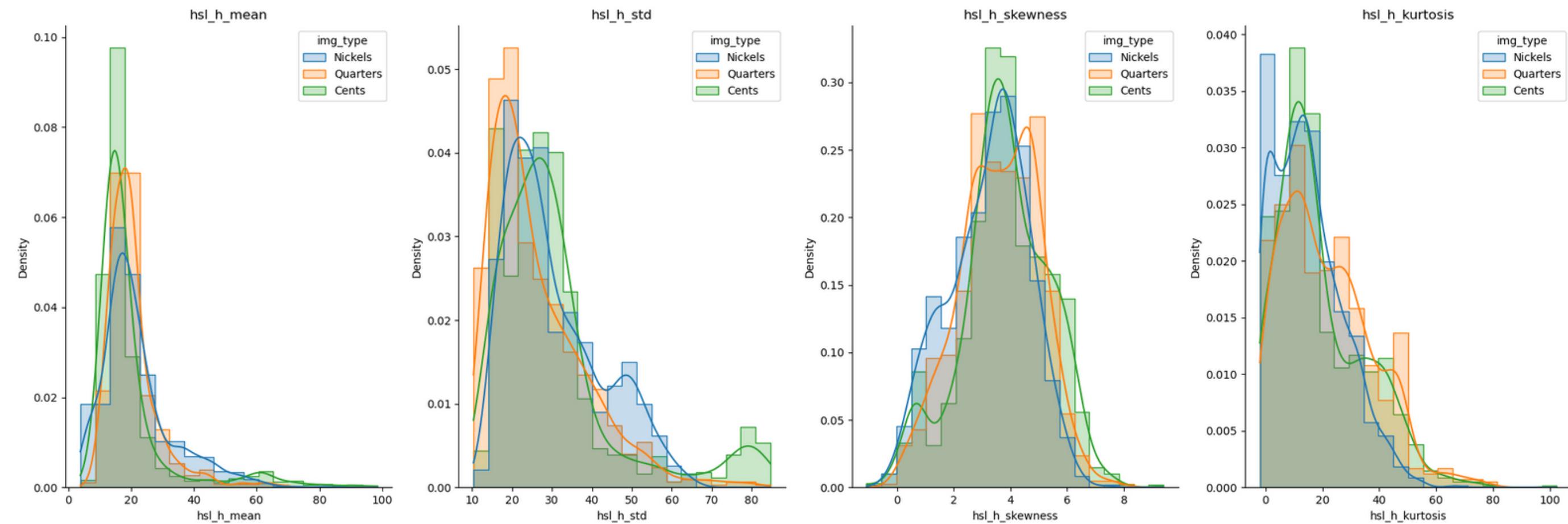
- Зоос бүрийн өнгийг ашигласан хувьсагч
- Зоос бүрийн пиксел дэх утгуудын өөрчлөлтийн хэмжээ болон өөрчлөлтүүдийн чиглэлийг ашигласан хувьсагч

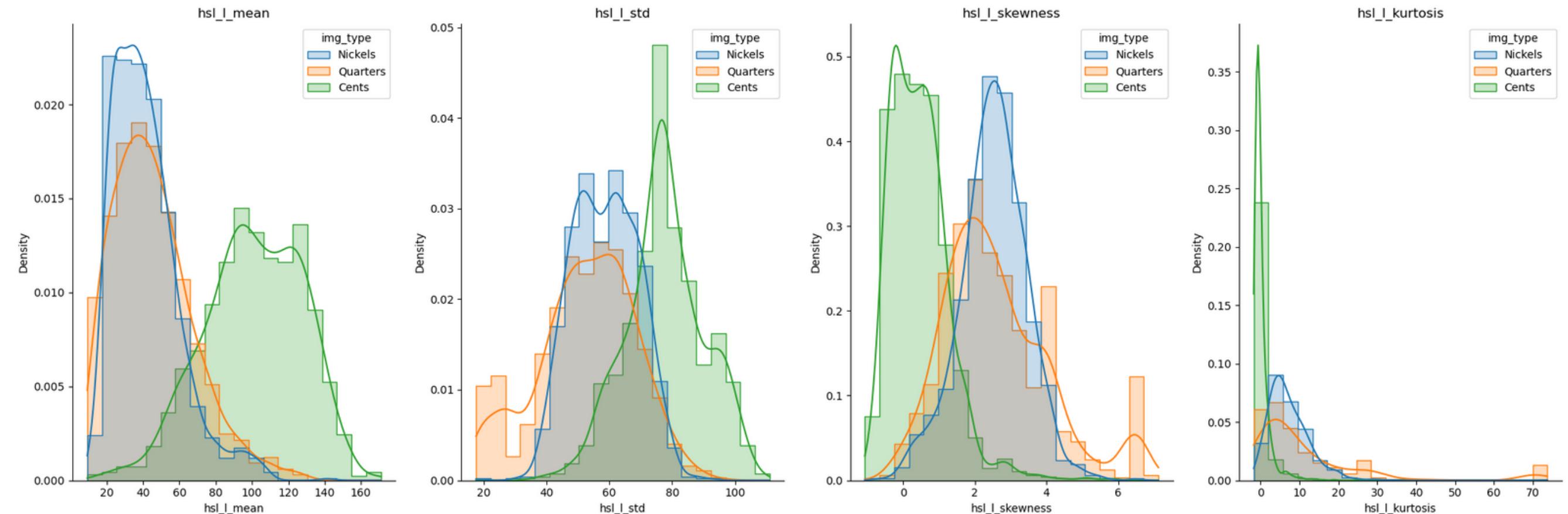
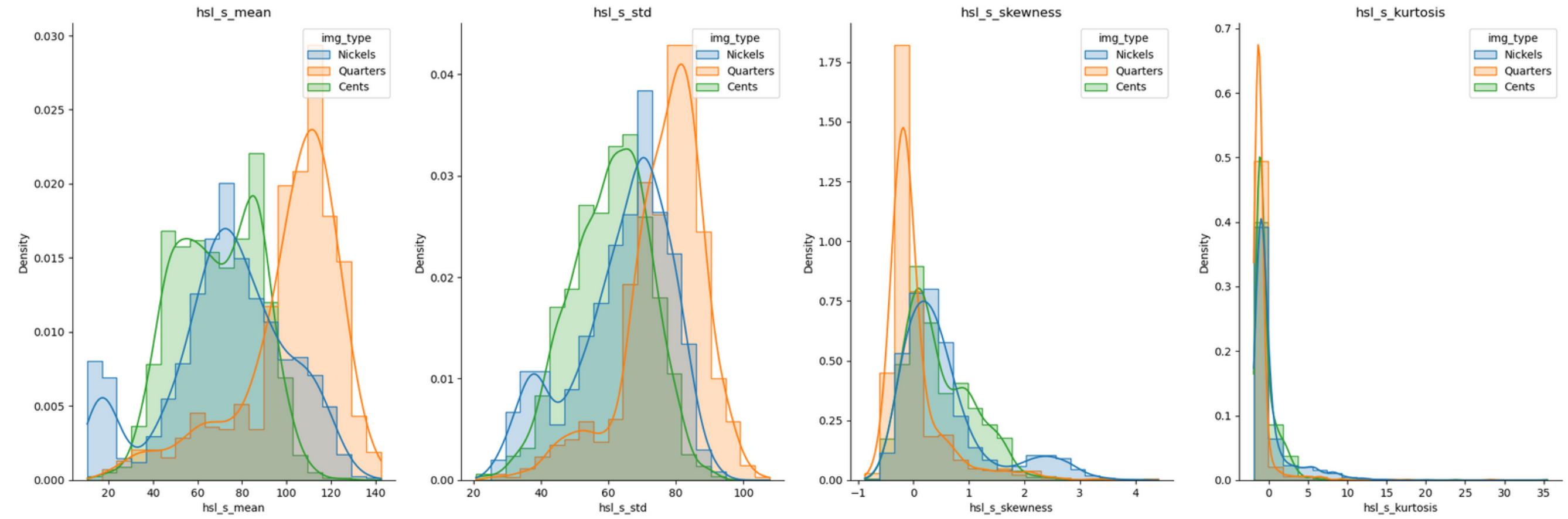
L*A*B Огторгуй



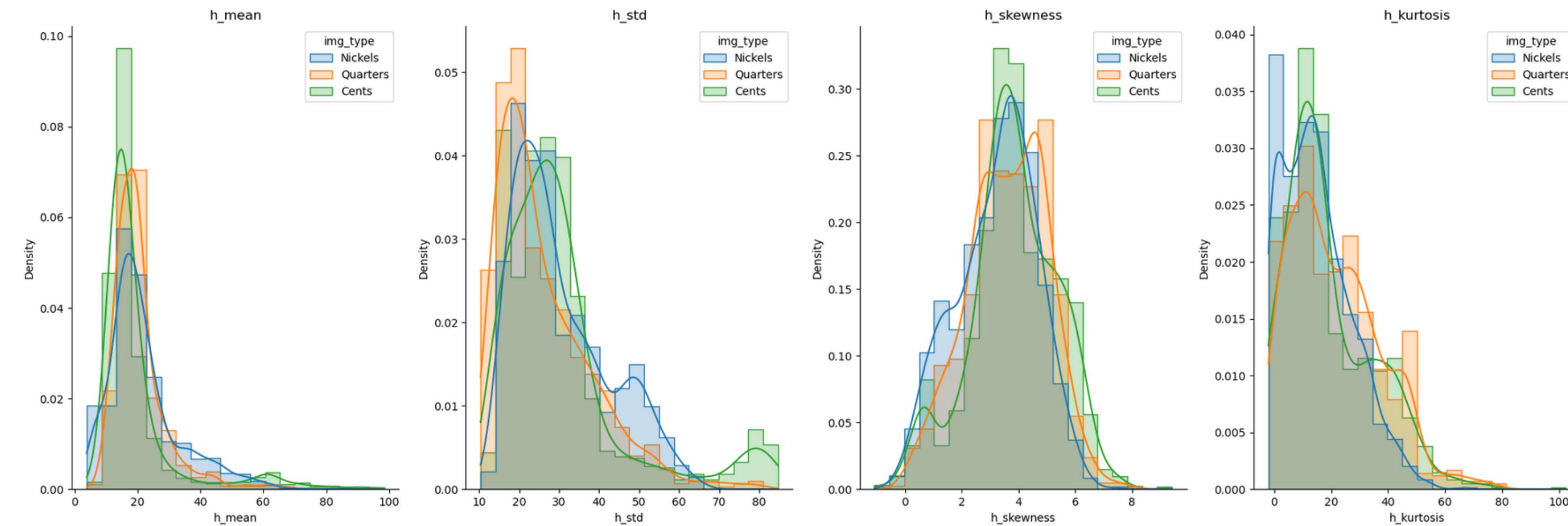


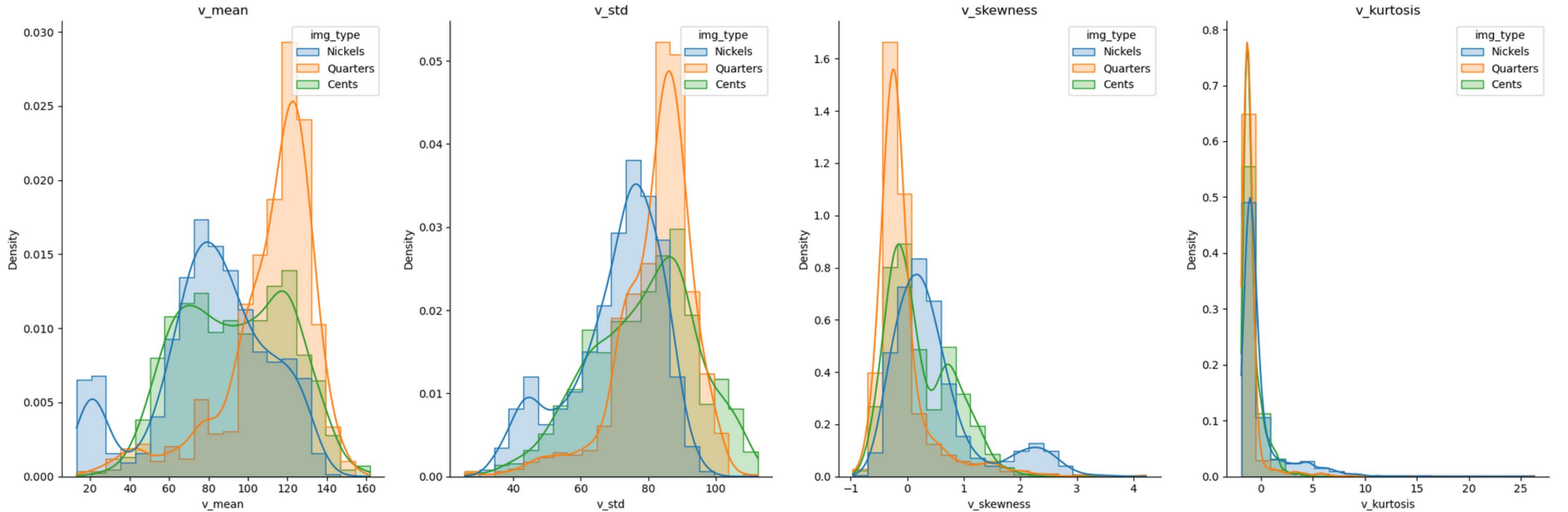
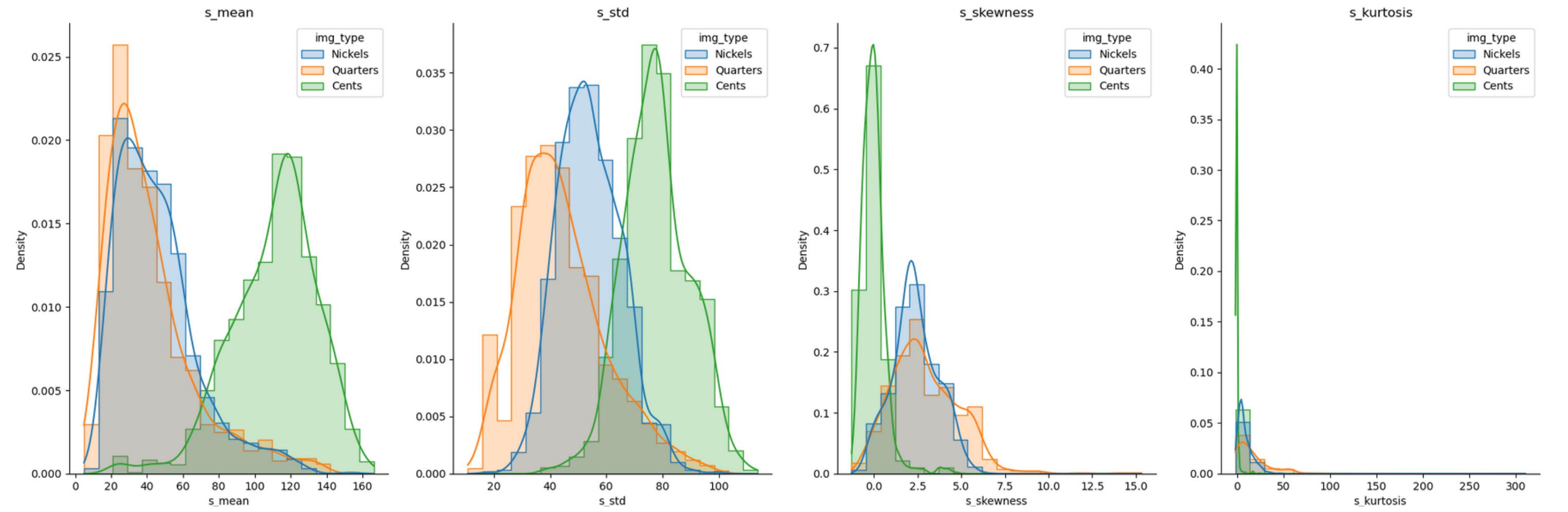
HSL Огторгуй



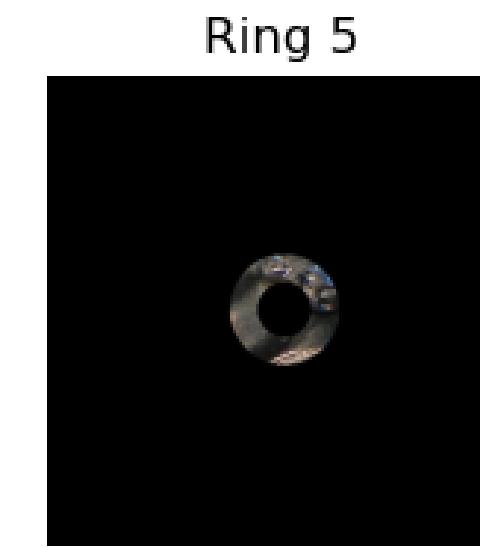
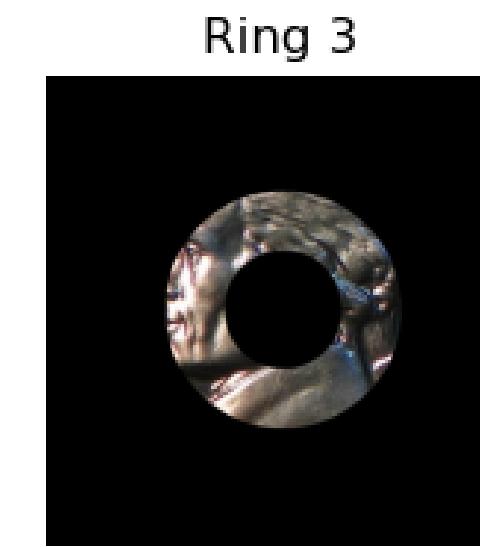
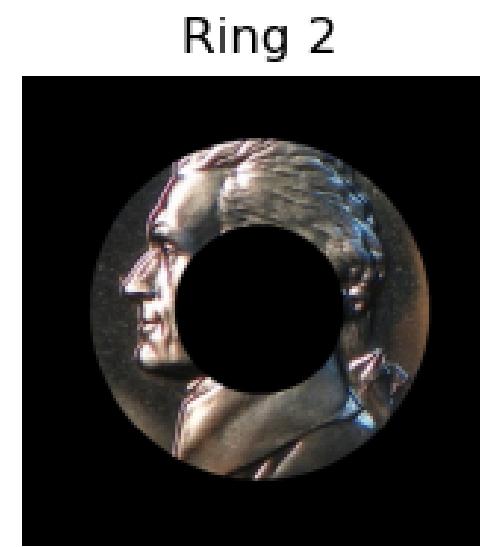
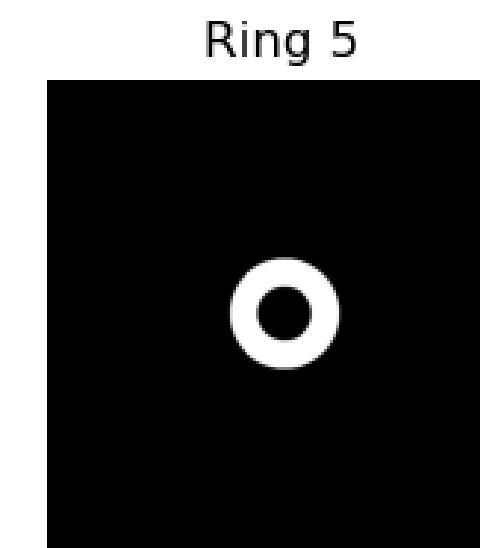
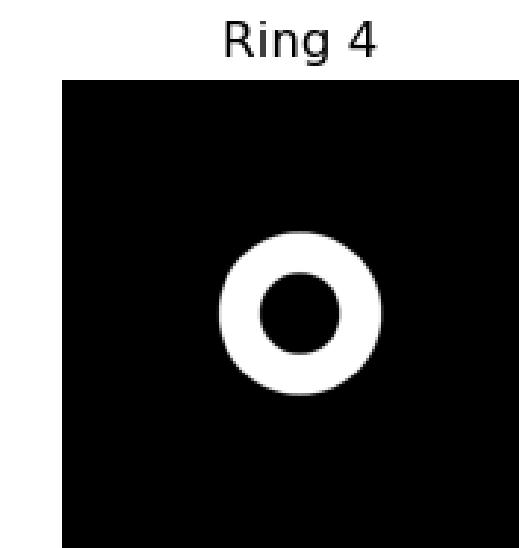
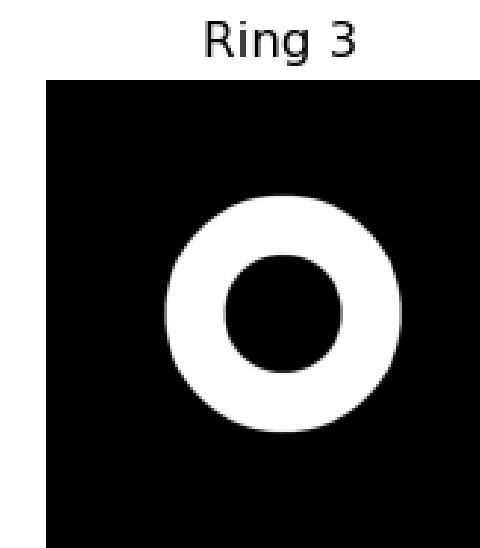
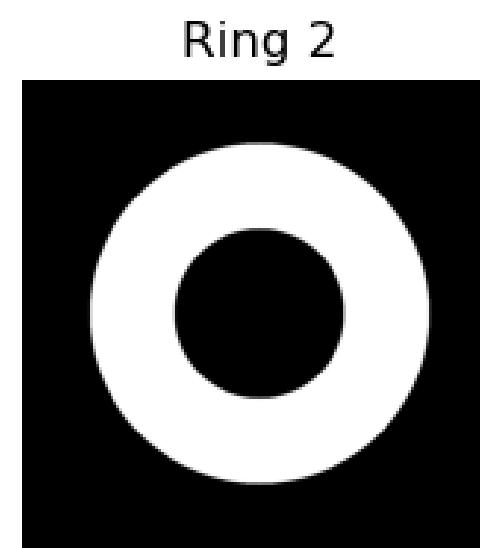
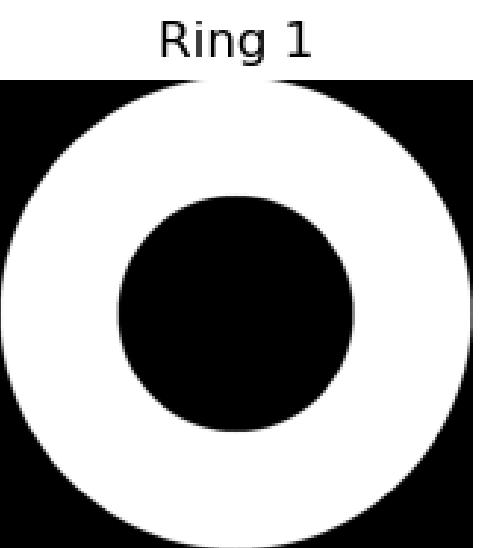


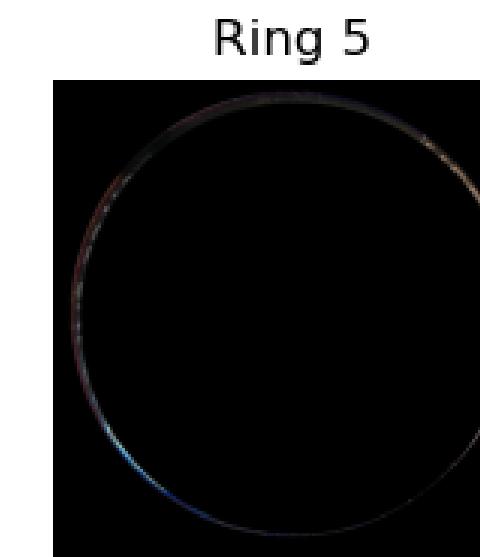
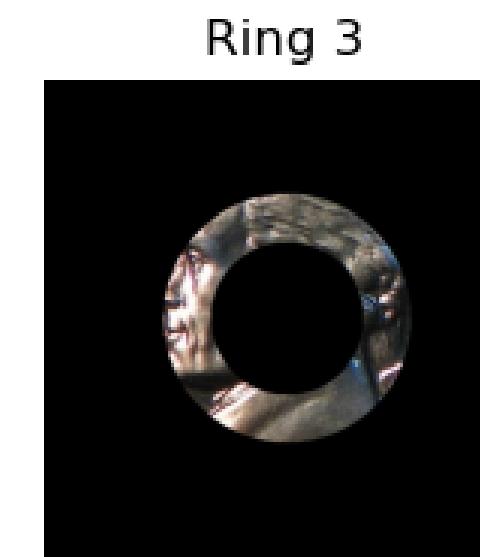
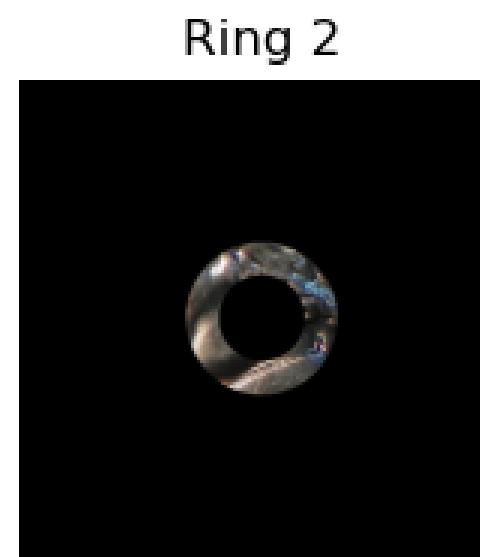
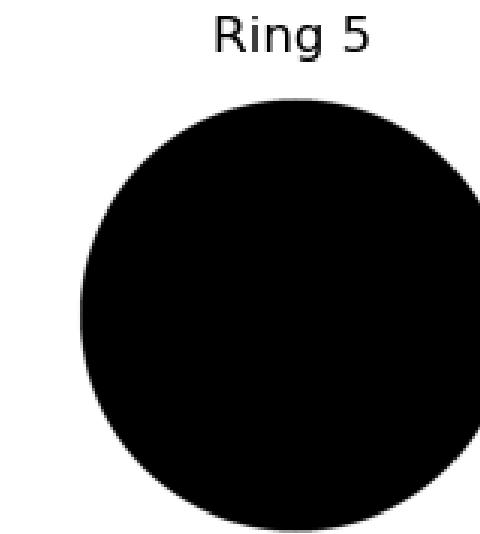
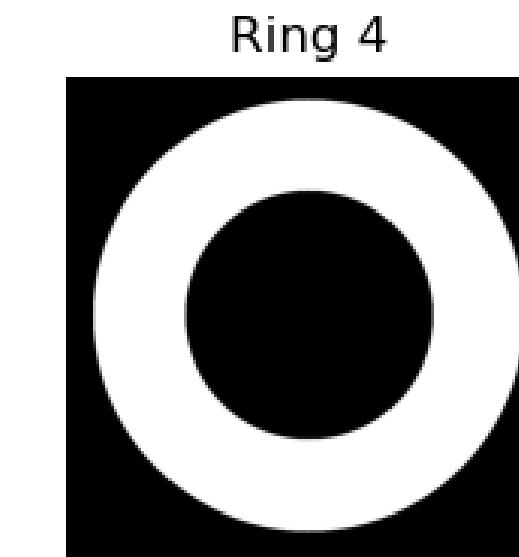
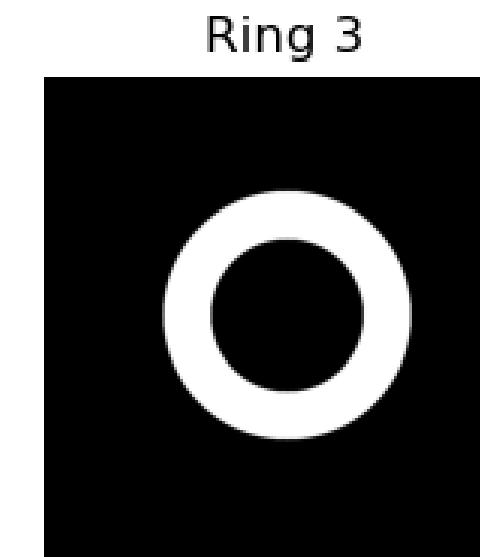
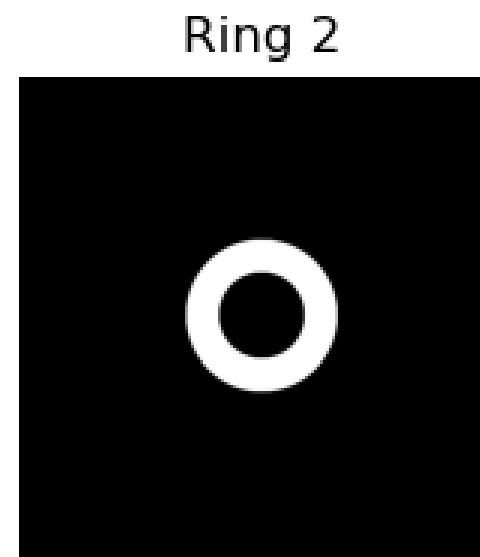
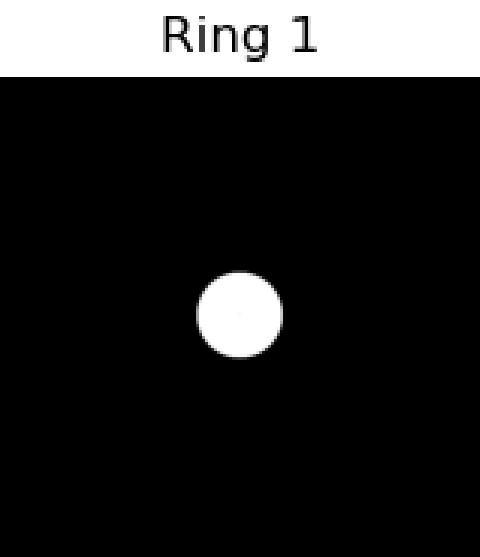
HSV Огторгуй





Цагираг ашиглах





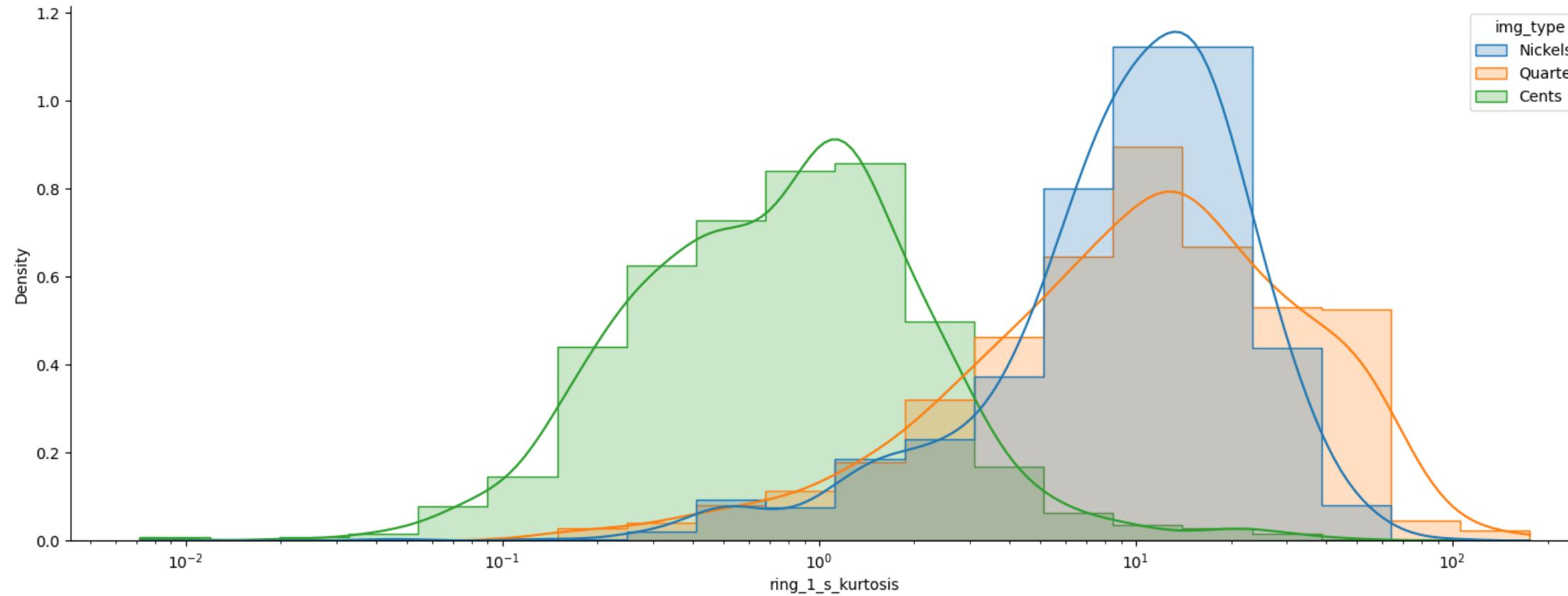
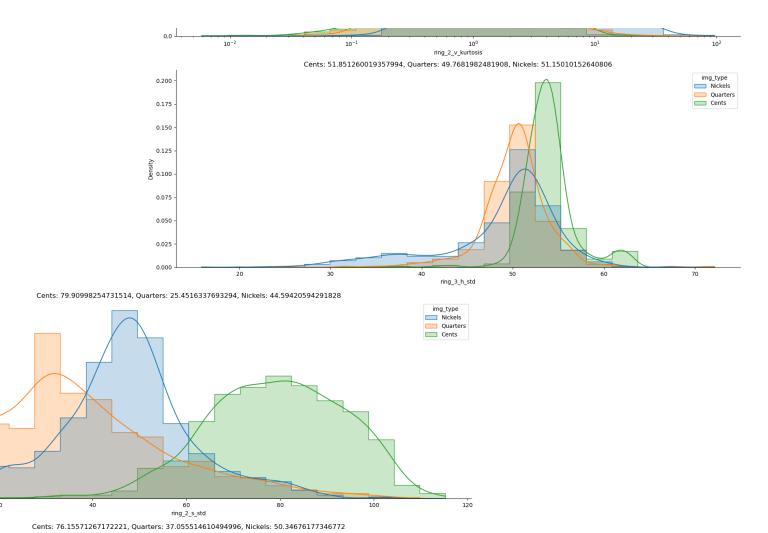
Нийт гарган авсан хувьсагчид

Зоос бүрийг 5 цагаригт хуваан цагариг тус бүрийн хувьд:

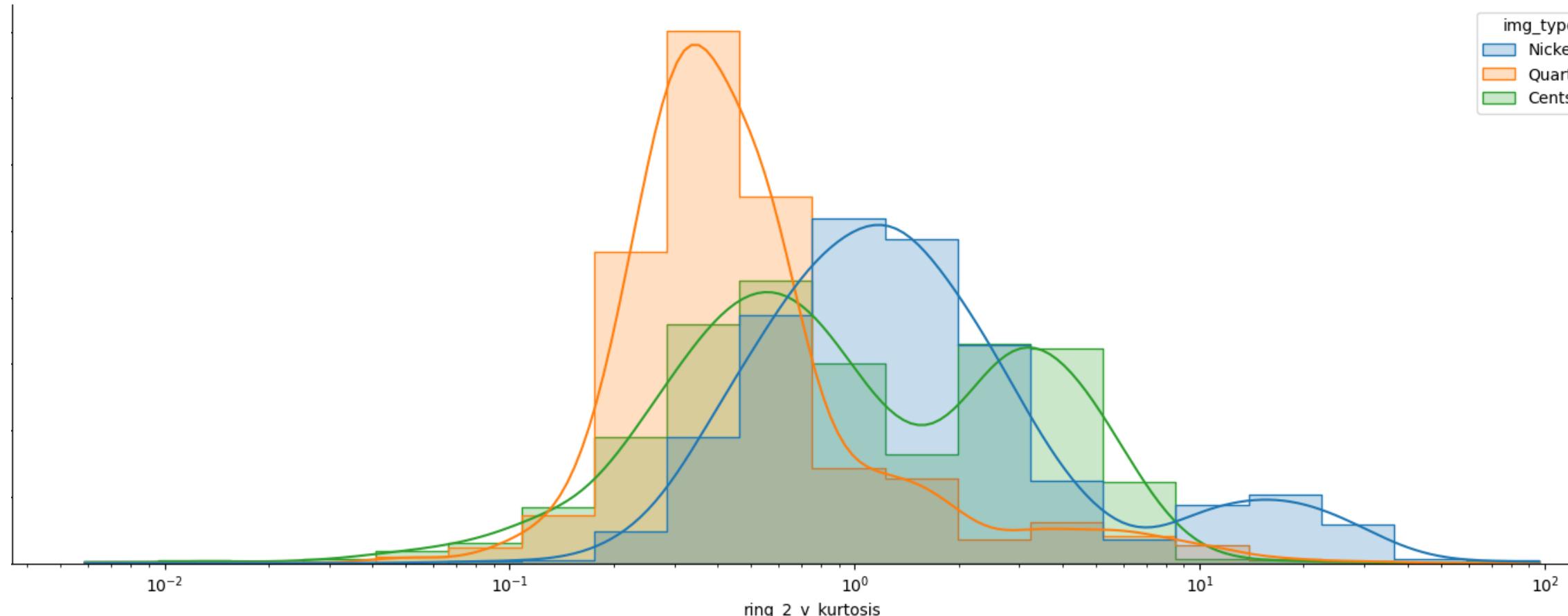
- HSV өнгөний суваг бүрийн 4 моментууд
- Градиентийн магнитуд болон чиглэлийн 4 момент гарган авсан

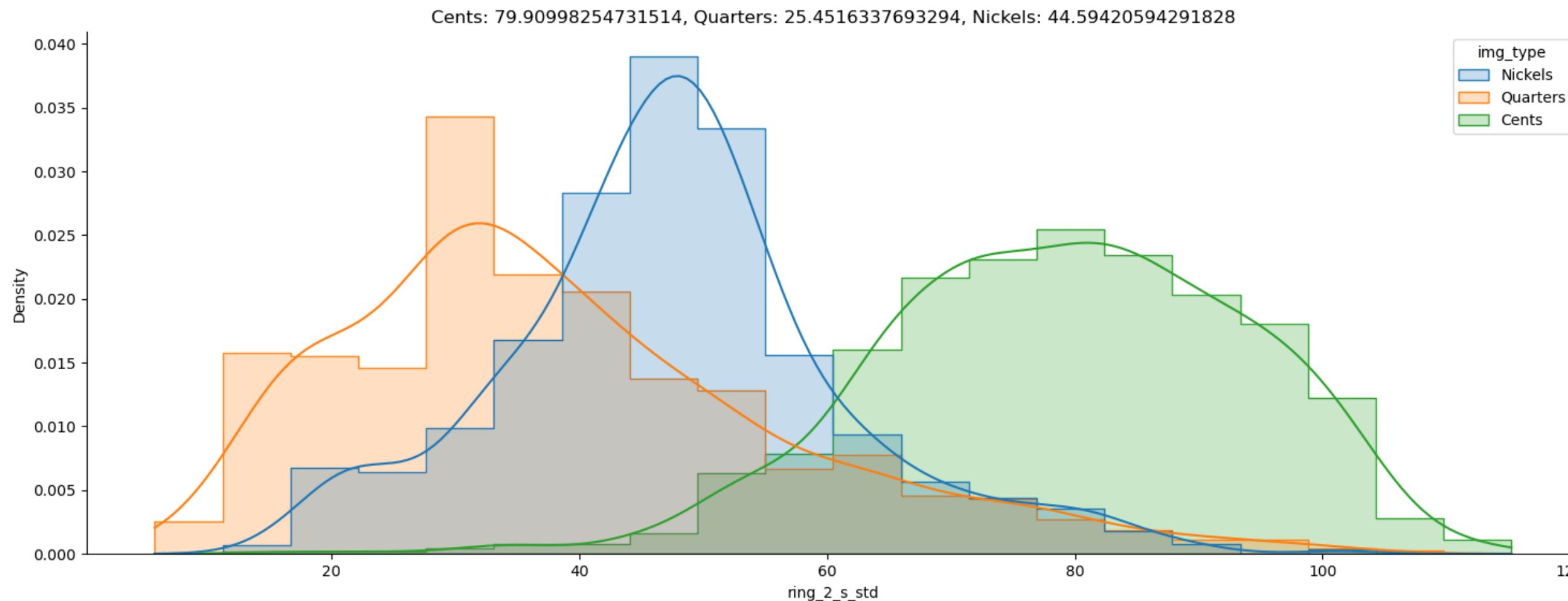
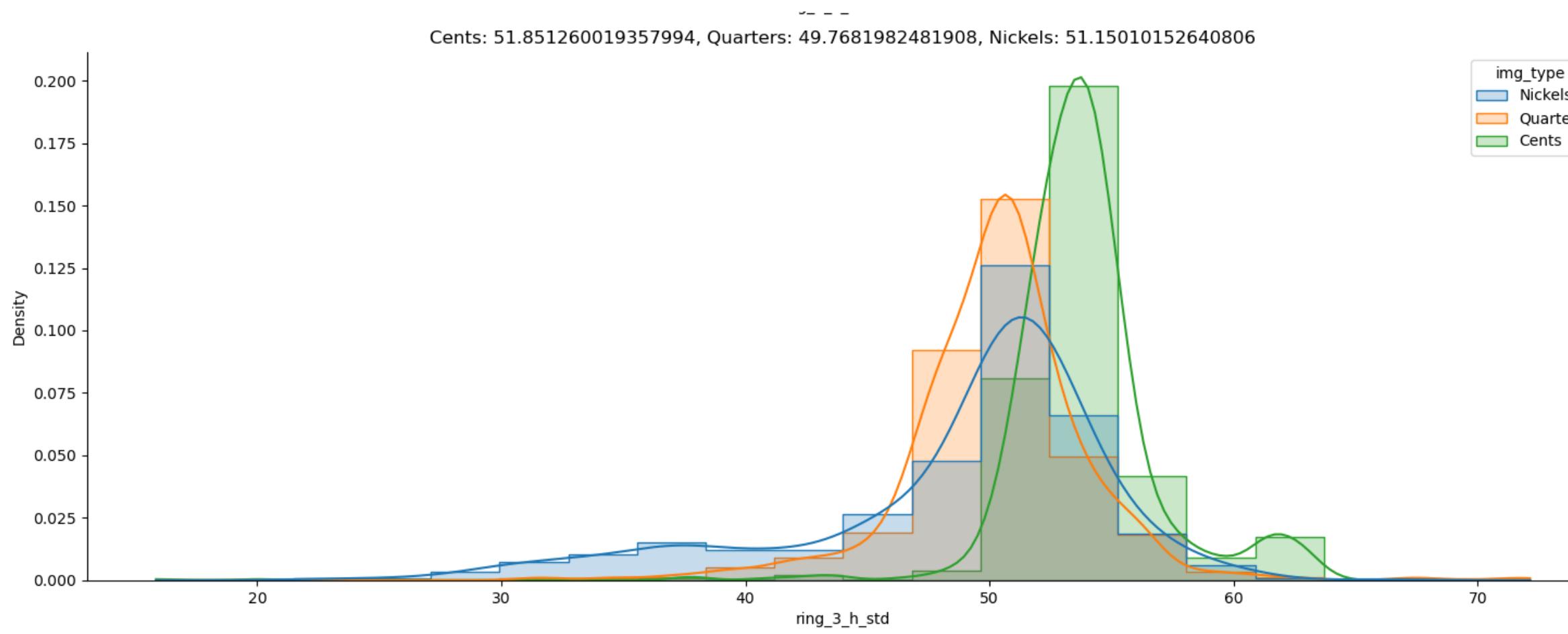
Эндээс нийт 3093x94 хэмжээтэй датафрайм бэлтгэсэн юм.

Cents: -1.0000000000065512e-05, Quarters: 0.1427248788766151, Nickels: 4.70209980924318

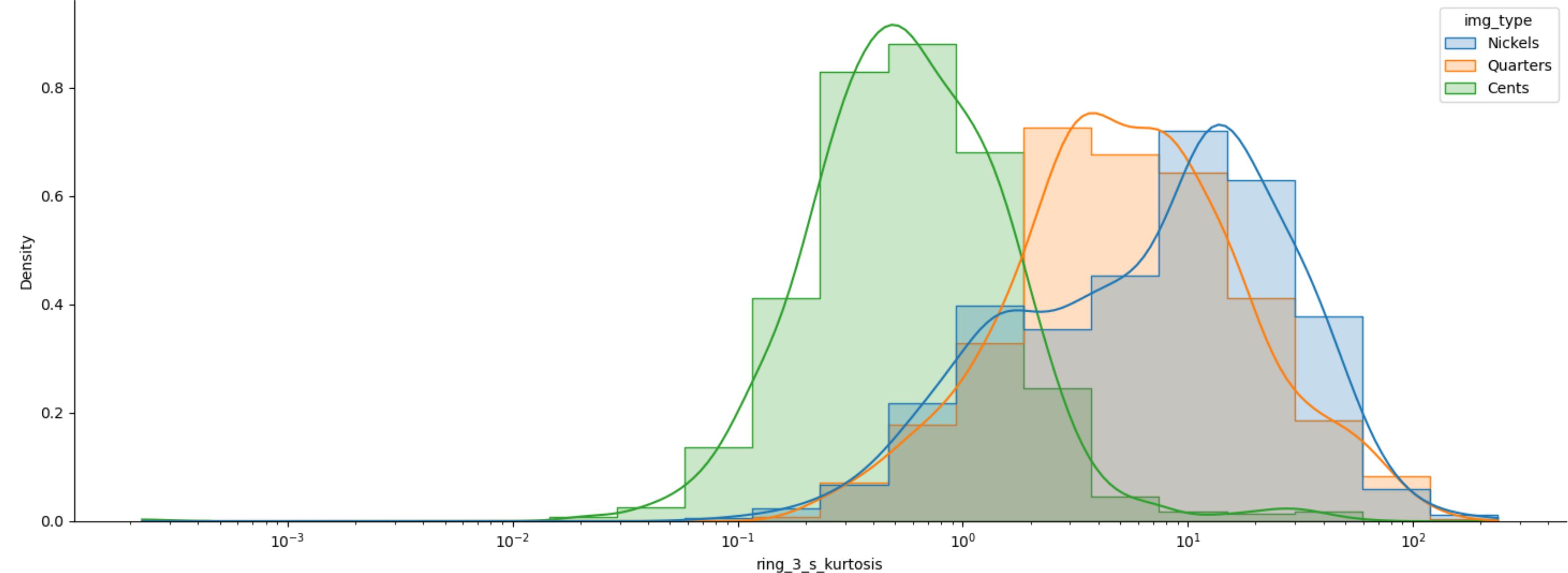


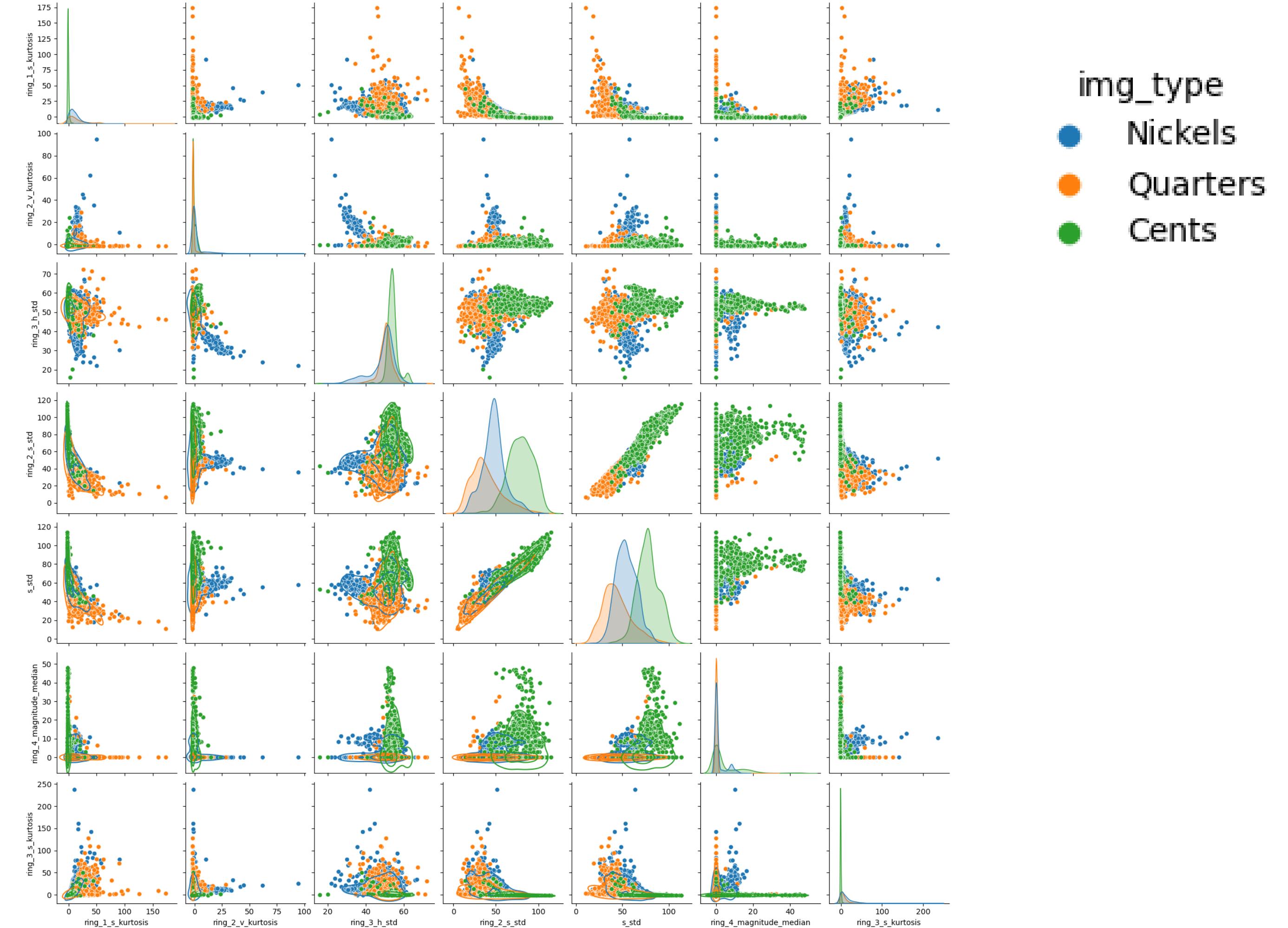
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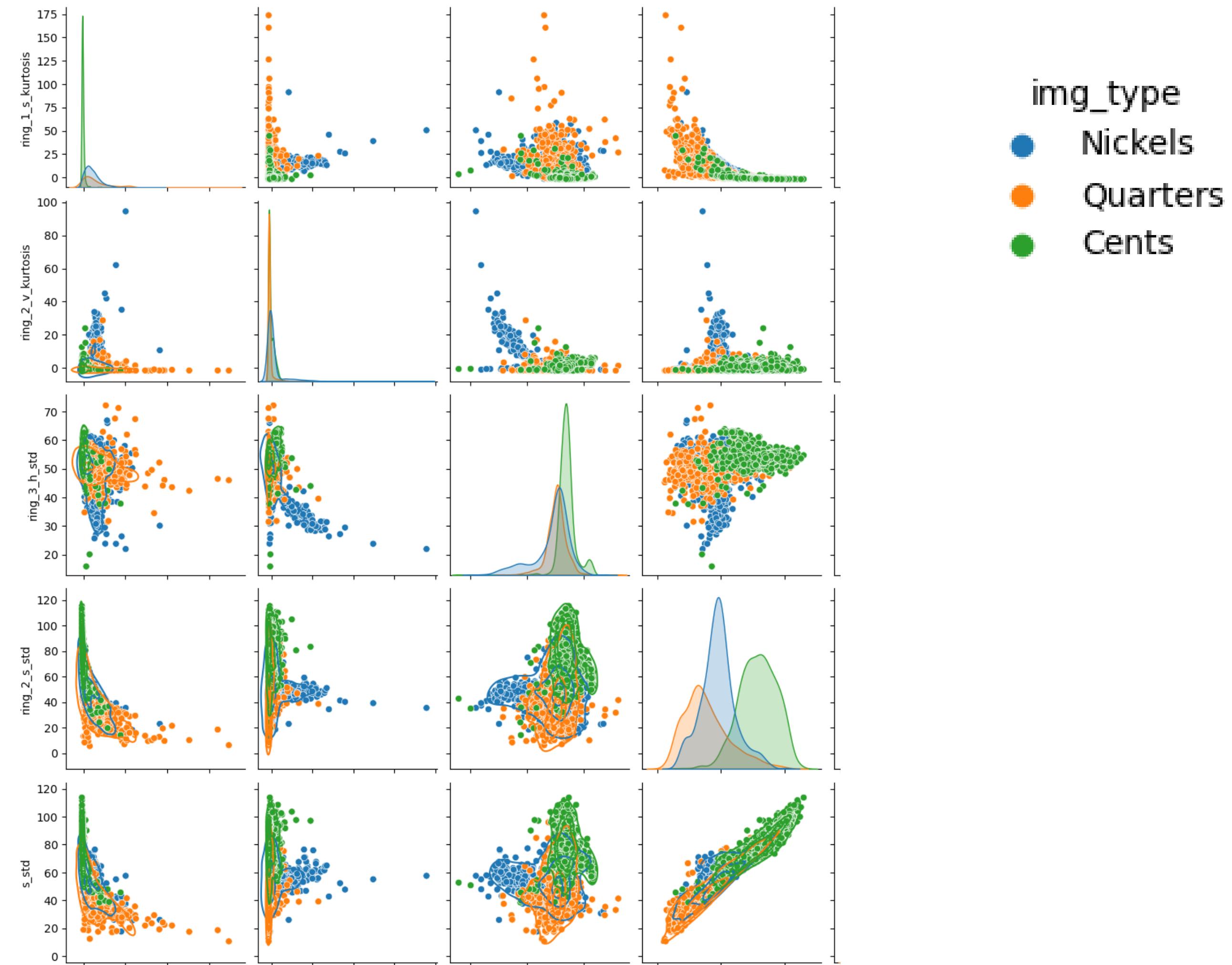




Cents: -1.000000000065512e-05, Quarters: 0.1922932940865738, Nickels: 0.07731141182785284







ШИЙДВЭРИЙН ФУНКЦ ОЛОХ

rmg-1-s-kurt ≤ 0.883
class = seat

+ / - / -
rmg3std ≤ 0.893

+ / $c = C$ / -
rmg2std ≤ 52.087

$c = N$ + / -
rmg3skew ≤ -0.461

+ / - / -
 $c = Q$ $c = C$

$c = N$ $c = Q$

- / -
rmg2-v-kurt ≤ -1.311

+ / $c = N$ / -
rmg4-mg-med ≤ 0.707

+ / $c = Q$ / -
 $c = Q$ $c = C$

$c = N$ + / -
 $c = N$ $c = N$

ДҮГНЭЛТ

Энэхүү лабораторийн ажилд дүрс боловсруулалтын аргууд ашиглан зураг дээрх мөнгөн тэмдэгт таних ажлыг гүйцэтгэлээ. Зургийн хэмжээ болон чиглэл (orientation) янз бүр байх тул эдгээрийн өөрчлөлтүүдэд инвариант байх хувьсагч олохыг зорьж ажиллаа.